

```

2 *****
3 * FINAL VERSION... 9/11/83
4 * BY ED ENGLISH OF INDIVIDEO, INC
5 *****
6
7
8 * 1ST 4K BANK OF MR.DO! ->
9
10 * THIS IS THE MAIN FILE FOR BANK 1
11 * OF MR.DO!
12 *****
13 TOP2 = $3012
14 BEGOR6 = $2000
15 BEGOBJ = $8004
16
17 LST ON
18 *****
19 * ATARI 2600 EQUATE FILE *
20 *****
21 PUT MR.DO.VCSDEF1
22 PAG
23 *****
24 * FAM DEFINITION & EQUATES *
25 *****
26 PUT MR.DO.EQU
27 PUT MR.DO.SOUND EQUATES
28
29 ORG BEGOR6-4
30 DA BEGOR6
31 DA END
32 PAG
33 *****
34 * POWERUP INITIALIZATION *
35 *****
36 PUT MR.DO.INIT
37 PAG
38 *****
39 * BOTTOM VERTICAL INTERVAL *
40 *****
41 PUT MR.DO.BOTVI
42 PAG
43 *****
44 * APPLE CONTROL CODE *
45 *****
46 PUT MR.DO.APPLE
47 PAG
48 *****
49 * VERTICAL RETRACE CODE *
50 *****
51 PUT MR.DO.VINT
52 PAG
53 *****
54 * JOYSTICK & SWITCH READING *
55 *****
56 PUT MR.DO.JOYSTICK
57 PAG
58 *****
59 * POWERBALL CONTROL CODE *
60 *****
61 PUT MR.DO.PWRBALL

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```

64 * BANK SWITCH FOR REST OF TOPVI*
65 *****
66     JMP TOPSW
67     PAG
68 *****
69 * BANK1 SUBROUTINES *
70 *****
71     PUT MR.DO.SUBS1
72     PAG
73     PUT MR.DO.FIELD.RTNS
74     PAG
75     OBJ BEGOBJ+$E07
76     ORG BEGORG+$E07
77 *****
78 * ORCHARD DATA TABLES *
79 *****
80     PUT MR.DO.FIELD DATA
81     PAG
82     OBJ BEGOBJ+$F00
83     ORG BEGORG+$F00
84 *****
85 * CHERRY DATA TABLES *
86 *****
87     PUT MR.DO.CHERRY TABLES
88     PAG
89     OBJ BEGOBJ+$FFC
90     ORG BEGORG+$FFC
91     DA PWRUP
92 END

```

:ASM

```

1  */ MR.DO.BANK1(PAL) LAST EDIT:9/15/83
2  *****
3  * FINAL LISTING FOR ATARI VCS "MR. DO!"
4  * PAL VERSION.... 9/11/83
5  * BY ED ENGLISH OF INDIVIDEO, INC
6  *****
7  ;
8  * 1ST 4K BANK OF MR.DO! ->
9  ;
10 * THIS IS THE MAIN FILE FOR BANK1
11 * OF MR.DO!
12 *****
13 TOP2      =      $3012
14 BEGORG    =      $2000
15 BEGOBJ    =      $8004
16 ;
17 *****
18 * ATARI 2600 EQUATE FILE      *
19 *****
20
21      PUT MR.DO.VCSDEF1
>1 *FILE: MR.DO.VCSDEF1
>2 *ATARI VCS VIDEO REGS + 6532 RIOT
>3 *****
>4 ;
>5 ATSYNC    =      $00      ;B1=1 BRINGS GUN HOME.
>6 ATBLNK    =      $01      ;B1=1 TURN GUN OFF.
>7 ATWAIT    =      $02      ;STOP 6507 UNTIL END OF LINE.
>8 ATACTL    =      $04      ;SPRITE/MISSILE A CONTROL-
>9 ATBCTL    =      $05      ;SAME AS ATACTL FOR SPRITE B.
>10 ATACOL    =      $06      ;SPRITE/MISSILE A COLOR.
>11 ATBCOL    =      $07      ;COLOR SPRITE B
>12 ATFCOL    =      $08      ;FIELD COLOR
>13 ATSCOL    =      $09      ;SCREEN COLOR
>14 ATFCTL    =      $0A      ;FIELD DATA/MISSILE CONTROL
>15 ATSALA    =      $10      ;SPRITE A HORIZ LATCH.
>16 ATSBLA    =      $11
>17 ATADAT    =      $1B      ;SPRITE A DATA.
>18 ATBDAT    =      $1C      ;SPRITE B DATA
>19 ATMVIN    =      $2A      ;ADDS INCR. TO SPRITE & MISSILE POS
>20
>20 ATREMV    =      $2B      ;RESET ALL 5 INCREMENT REGS.
>21 ATJBA     =      $3C      ;JOY BUTTON A.
>22 JOYDAT    =      $280     ;JOYSTICKDATA (PORT A).ALSO PADDLE
>23
>23 ;0=CLOSED 1=OPEN
>24 * JOYDAT BITMASKS-->
>25 *-----
>26 JOYAUP    =      $10      ;A UP
>27 JOYADN    =      $20      ;A DOWN
>28 JOYALT    =      $40      ;A LEFT
>29 JOYART    =      $80      ;A RIGHT
>30 ;
>31 ;
>32 SWITCH    =      $282     ;PANEL SWITCHES (PORT B).
>33 * BIT MASKS FOR SWITCH-->
>34 *-----
>35 WIRES     =      $01      ;GAME RESET
>36 WISEL     =      $02      ;GAME SELECT
>37 SWICOL    =      $08      ;TV TYPE(0=BW, 1=COL)
>38 SWIADF    =      $40      ;PLAYER A DIFFICULTY
>39 SWIBDF    =      $80      ;      B
>40 ;
>41 * 6532 READ-ONLY REGS
>42 *-----
>43 TIMER     =      $284     ;TIMER

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ITIONS.

BUTTONS.

>44 TIME64 = \$296 ;TIMER/64.


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23 *****
24 * RAM DEFINITION & EQUATES *
25 *****
26 PUT MR.DQ.EQU
>1 */MR.DQ.EQU (PAL) LAST EDIT:9/15/83
>2 *****
>3 * *
>4 * * * * *
>5 * * * * *
>6 * * * * *
>7 * * * * *
>8 * * * * *
>9 * * * * *
>10 * *
>11 *****
>12 * GAME CONTROL RAM *
>13 *-----*
>14 GAME = $80 ;B0-B3 = GAME NUM.
>15 ROUND = $81 ;B0-B3 = ROUND NUM.
>16 ;
>17 *****
>18 * SCORE DATA *
>19 *-----*
>20 SCORLO = $82 ;LO 2 SCORE DIGITS.
>21 SCORHI = $83 ;HI 2 SCORE DIGITS.
>22 ;
>23 FRAMEL = $84 ;FRAME COUNT LO.
>24 FRAMEH = $85 ;FRAME COUNT HI.
>25 ;
>26 *****
>27 * SOUND DATA *
>28 *-----*
>29 AIDX = $86 ;IDX TO CH A SOUND.
>30 BIDX = $87 ;IDX TO CH B SOUND.
>31 ADUR = $88 ;DURATION OF CH A SOUND.
>32 ;ZERO = GET NEXT NOTE.
>33 ;MINUS = NO SOUND ON.
>34 BDUR = $89 ;DURATION OF CH B SOUND.
>35 ;
>36 *****
>37 * MISC. STATUS BYTES--> *
>38 *****
>39 DIGINV = $8A ;NUM DIGGERS LEFT.
>40 ALPHA = $8B ;ALPHA MONSTER STATUS.
>41 ;B0-B2=IDX FOR CHANNEL SELECT.
>42 ;B3-B7=LETTER GOTTEN FLAGS.
>43 CHERRYT = $8C ;CHERRY TIMER/NOTE PTR.
>44 ;B0-B4=TIMER SINCE LAST CHERRY EAT
EN.
>45 ; (0=TIMER EXPIRED).
>46 ;B5-B7=NOTE IDX FOR NEXT CHERRY EA
TEN SOUND.
>47 ;
>48 APFALL = $8D ;APPLE FALLING IDX.
>49 ;B7=1=NO APPLE FALLING.
>50 ;B4-B6=WHICH APPLE IS FALLING.
>51 ;B0-B3=STAGE TIMER.
>52 ANIMB = $8E ;ANIMATION FLAGS.
>53 ;B7=MR DO BEING DRAGGED.
>54 ;B6=DIG1 BEING DRAGGED.
>55 ;B5=DIG2 BEING DRAGGED.
>56 ;B1=ALF MONSTER OUT.
>57 ;B0=MR DO IMG.FLIP/FLOP.
>58 FCOLOR = $8F ;FIELD (ORCHARD) COLOR.
>59 *****

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G).

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60      *      CHERRY DATA      *
>61      *-----*
>62      ;8 BYTES ($90-$97).
>63      CHERRYC      =      $90      ;CHERRY CONTROLS FOR 8 BANDS.
>64      ;B0-B2 = CONTROL VALUE (REP/SPACIN
>65      ;B3-B6 = IDX TO CPOF TABLE.
>66      ;B7 = NO CHERRY/SOME CHERRY FLAG.
>67      ;
>68      *****
>69      *      ASYM FIELD DATA      *
>70      *-----*
>71      ;32 BYTES ($98-$B7).
>72      FR1L      =      $98      ;8 BANDS OF FR1 LEFT DATA.
>73      FR2L      =      $A0      ;8 BANDS OF FR2 LEFT DATA.
>74      FR2R      =      $A8      ;8 BANDS OF FR1 RIGHT DATA.
>75      FR1R      =      $B0      ;8 BANDS OF FR2 RIGHT DATA.
>76      ;
>77      LASTJY      =      $BB      ;LAST LEGAL JOY (MR.DO. DIR).
>78      ;
>79      *****
>80      *      MISSILE DATA      *
>81      *-----*
>82      MISLN      =      $B9      ;MIS LINENUM.
>83      MSBAND      =      $BA      ;MIS VERT POS.
>84      ;B0-B3 = LN OFFSET.
>85      ;B4-B6 = BAND NUM.
>86      ;B7 = ON/OFF FLAG.
>87      ;
>88      MISPOF      =      $BB      ;MIS HORIZ POS.
>89      ;B0-B6 = IDX TO POSTBL.
>90      ;B7 = MIS AVAILABLE FLAG.
>91      ;
>92      MISDIR      =      $BC      ;MIS DIRECTION.
>93      ;B0-B1 = MIS DIRECTION.
>94      ;ALSO DOUBLES AS TIME
>95      ;BEFORE PWRBALL AVAIL AGAIN.
>96      ;
>97      ;
>98      *****
>99      *      MR.DO & DIGGER DATA      *
>100     *-----*
>101     DOBAND      =      $BD
>102     DIGBAND      =      $BE      ;DIG VERT POS.
>103     ;B0-B3 = LN OFFSET.
>104     ;B4-B6 = BAND NUM.
>105     ;B7= ON/OFF FLAG.
>106     ;
>107     DOPOF      =      $C0
>108     DIGPOF      =      $C1      ;DIG HORIZ POS.
>109     ;B0-B6 = IDX TO POSTBL.
>110     ;
>111     DODAT      =      $C3
>112     DIGDAT      =      $C4      ;DIG DATA PTR.
>113     ;
>114     DIGDIR      =      $C6      ;DIG CONTROL.
>115     ;B0-B1 = DIRECTION.
>116     ;B7 = DIGGING FLAG.
>117     DIGSPD      =      $C8      ;DIG SPEED.
>118     ;(IDX TO SPD_TBL)
>119     ;B0= UP SPEED.
>120     ;B1= DOWN SPEED.
>121     ;B2= LEFT SPEED.
>122     ;B3= RIGHT SPEED.
>123     ;
>124     DIGTIM      =      $CA      ;DIG STAGE TIMER.

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>125 DIGIO      =      $CC      ;DIG INTELLIGENCE.
>126                                     ;B0-B2=HOW MANY CCELLS TO GO
>127                                     ;BEFORE TRYING NEW DIR.
>128 MUX        =      $CE      ;NUM0 TO 2 FOR MUX MGR.
>129                                     ;
>130                                     ;
>131 *****
>132 *      APPLE  RAM      *
>133 *****
>134                                     ;8 BYTES ($D0-$D7).
>135 APBAND      =      $D0      ;APPLE POS.
>136                                     ;B0-B3 = IMG TBL IDX.
>137                                     ;B4-B6 = BAND NUM.
>138                                     ;B7 = ON/GONE FLAG.
>139                                     ;
>140 APPOF       =      $D4      ;APPLE HORIZ POS.
>141                                     ;B0-B6 = IDX TO POSTBL.
>142                                     ;B7 = FALLING FLAG.
>143 FWRTIM      =      $D8      ;IDX TO PTIME FOR WHEN BALL AVAIL

>144 MODE       =      $DA      ;GAME MODE.
>145 RANDOM      =      $D9      ;FREE RUNNING RANDOM #.
>146 DOINV       =      $DB      ;NUM MR DO'S LEFT.
>147                                     ;
>148 *****
>149 *      TEMPORARY (SHARED) RAM      *
>150 *-----*
>151                                     ;36 BYTES ($DC-$FF).
>152                                     ;
>153 *      RAM USED TO PAINT PLAYFIELD->
>154 *****
>155 PTR         =      $DC      ;SA IMG PAGE FLAGS FOR 8 BANDS.
>156                                     ;
>157 BAND        =      $DD      ;BAND NUM
>158                                     ;
>159 * SPRITE A (DIG,APPLE) DISPLAY RAM
>160 *      ($DE-$EE)
>161 *****
>162 LODATA      =      $DE      ;LO ADDR SA (8 BANDS).
>163 ADAT        =      $E5      ;LO ADDR FOR SA INDIRECT.
>164 HIDATA      =      $E6      ;HI DATA ADDR FOR SA.
>165                                     ;$E7-$EE->
>166 APOF        =      $E7      ;SA POFs.
>167                                     ;
>168 * SPRITE B (MR DO,CHERRY) DISPLAY RAM
>169 *      ($EF-$FF)
>170 *****
>171 LODATB      =      $EF      ;LO ADDR SB (8 BANDS).
>172 BDAT        =      $F6      ;LO ADDR FOR SB INDIRECT.
>173 HIDATB      =      $F7      ;HI DATA ADDR FOR SB.
>174                                     ;$F8-$FF->
>175                                     ;*****
>176 BPOF        =      $F8      ;SB POF VALUES FOR 8 BANDS.
>177                                     ;
>178                                     ;
>179 *      TEMP VERTICAL INTERVAL RAM
>180 *-----*
>181 TEMP14      =      $EA
>182 TEMP15      =      $EB
>183 TEMP11      =      $EC
>184 TEMP12      =      $ED
>185 TEMP13      =      $EE
>186 TEMP1       =      $EF
>187 TEMP2       =      $F0
>188 TEMP3       =      $F1
>189 TEMP4       =      $F2

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AGAIN.

```
>190 TEMP5 = $F3
>191 TEMP6 = $F4
>192 TEMP7 = $F5
>193 TEMP8 = $F6
>194 TEMP9 = $F7
>195 TEMP10 = $F8
>196 ;
>197 * RAM FOR DISPLAYING 6 SPRITES->
>198 * NOTE-THIS RAM PLUS TEMP1,2,3 DOES
>199 * NOT CONFLICT WITH SA DISPLAY RAM.
>200 *****
>201 PD100K = $F2
>202 PD10K = $F4
>203 PD1K = $F6
>204 PD100 = $F8
>205 PD10 = $FA
>206 PD1 = $FC
>207 ;
```



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>209 *****
>210 *
>211 *   *****   *****   *   *   *
>212 *   *   *   *   *   *   *
>213 *   ***   *   *   *   *   *
>214 *   *   *   *   *   *   *
>215 *   *   *   **   *   *   *
>216 *   *****   ***** *   *****
>217 *
>218 *****
>219 *   COLOR   EQUATES   *
>220 *-----*
>221
>222 BLACK   =   0
>223 WHITE   =   $0E
>224 RED     =   $22
>225 YELLOW  =   $28
>226 GREEN   =   $34
>227 ORANGE  =   $28
>228 BLUE    =   $B6
>229 PURPLE   =   $68
>230 BROWN   =   $12
>231 GOLD    =   $16
>232 LBLUE   =   $96
>233
>234 SCRCOL  =   BLACK   ;BKGND COLOR OF ORCHARDS.
>235
>236 *****
>237 *   DIRECTION EQUATES -->   *
>238 *-----*
>239 * STARTING IDXs FOR EACH DIR IN DIRtbl->
>240 UPI      =   0
>241 DOWNI    =   4
>242 RIGHTI   =   8
>243 LEFTI    =   12
>244
>245 * DIRECTION VALUES-->
>246 UPD      =   0
>247 DOWND    =   1
>248 RIGHTD   =   2
>249 LEFTD    =   3
>250
>251 *****
>252 *   GAME MODES-->   *
>253 *****
>254 RESUM    =   $80   ;RESUME PLAY MODE(1 SEC BLACK).
>255 XTRADO   =   $70   ;EXTRA MR.DO.WON.
>256 TRACK    =   $50   ;ALT CFMD+ ORCH.
>257 GAMOVR   =   $40
>258 SELECT   =   $30   ;SELECT MODE.
>259 DODEAD   =   $20
>260 PLAY     =   $10
>261
>262 *****
>263 *   VERT INTERVAL TIMER EQUATES *
>264 *-----*
>265 * TOTAL PICTIME (TITLE & ORCH)=178 LINES.
>266                                     ;44 LINES.
>267 TOPTIM    =   $A9+10   ;TOPVI TIMER VALUE.
>268                                     ;51 LINES.
>269 MIDTIM    =   $AD+15   ;TIME TO PAINT SCORE,EXTRA + SET R

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AM UP.

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;312 LINES.
27 PUT MR.DG.SOUND EQUATES
>1 */ SOUND EQUATES LASTED 7/8/83
>2
>3 * OFFSETS FROM SNDTBL-->
>4 *****
>5 DEADSND = 0
>6 BEEP = 8
>7 BOOF = $0E
>8 BELLS = $14
>9 ;CHERRY NOTES->
>10 CHER1 = $1C
>11 CHER2 = $29
>12 CHER3 = $36
>13 CHER4 = $43
>14 CHER5 = $50
>15 CHER6 = $5D
>16
>17 * OFFSETS FROM AMUSFW (MUSIC)->
>18 *****
>19 SONG1 = 0 ;ORCHARD SONG.
>20 SONG2 = $31 ;END SONG.
>21 SONG3 = $51 ;DO DEAD SONG.
28 ;
29 ORG BEGORG-4
30 DA BEGORG
31 DA END

1FFC: 00 20
1FFE: FE 2F

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33 *****
34 * POWERUP INITIALIZATION *
35 *****
36 PUT MR.DO.INIT
>1 */ MR.DO.INIT LASTED:7/27/83.
>2 *
>3 * BANK SWITCH TO 2ND BANK->
>4 *****
>5 TOPSW
2000: AD F9 FF >6 LDA $FFF9
2003: 4C 12 30 >7 JMP TOP2 ;CONT.W/TOPVI.
>8 * COME HERE FROM BANK 2-->
>9 *****
2006: EA >10 NOP
2007: EA >11 NOP
2008: EA >12 NOP
2009: EA >13 NOP
200A: 4C 2E 20 >14 JMP BOTVI
200D: EA >15 NOP
200E: EA >16 NOP
200F: EA >17 NOP
2010: EA >18 NOP
2011: EA >19 NOP
>20 ;
>21 * ENTER HERE FOR BANK2 POWERUP->
>22 *****
>23 PWRUP
2012: 78 >24 SEI
2013: DB >25 CLD
2014: A2 00 >26 LDX #0
2016: 8A >27 TXA
2017: 95 00 >28 CLRAM STA 0,X
2019: 9A >29 TXS
201A: EB >30 INX
201B: D0 FA >31 BNE CLRAM
>32 *
>33 * GO INIT CHERRY, FIELD MAP, MUGS, APPLES, ETC-->
>34 *****
>35 ;ROUND=0
201D: 20 A7 29 >36 JSR IROUND
>37 ;NO SONG->
>38 ;
2020: A9 30 >39 LDA #SELECT ;TRACK MODE
2022: 85 DA >40 STA MODE ;GAME NUM=0
>41 ;
2024: A9 FF >42 LDA #$FF
2026: 85 B8 >43 STA ADUR
2028: 85 B9 >44 STA BDUR ;NO SND.
>45 ;
202A: A9 31 >46 LDA #$31 ;BX MIS.
202C: 85 0A >47 STA ATFCTL ;MIRROR.
>48 ;
>49 ;

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```

38 *****
39 * BOTTOM VERTICAL INTERVAL *
40 *****
41 PUT MR.DO.BOTVI
>1 */ MR.DO.BOTVI LASTED: 9/15/83
>2 *****
>3 * BOTTOM VERTICAL INTERVAL *
>4 *****
>5 BOTVI
202E: A9 AC >6 LDA #BOTTIM
2030: 85 02 >7 STA ATWAIT
2032: 8D 96 02 >8 STA TIME64 ;INIT TIMER.
2035: A5 DA >9 LDA MODE
2037: C9 10 >10 CMP #PLAY
2039: F0 03 >11 BEQ FMODE
>12 ;
>13 *SKIP MOST BOTVI IF NOT PLAY MODE
>14 *****
203B: 4C 3C 23 >15 JMP ENDBOT
>16 ;
>17 * ARE ALL DIGGERS DEAD???
>18 *****
>19 PMODE
203E: A9 F8 >20 LDA #$F8
2040: 25 8B >21 AND ALPHA
2042: C9 F8 >22 CMP #$F8 ;ALL LETTERS HAD?
2044: F0 0C >23 BEQ EATTST ;J Y. (SKIP DIGS DEAD TEST)
>24 ;
2046: A5 BE >25 LDA DIGBAND
2048: 10 0B >26 BPL EATTST
204A: A5 BF >27 LDA DIGRAND+1
204C: 10 04 >28 BPL EATTST
>29 ;BOTH DIGS ARE OFF->
204E: A5 8A >30 LDA DIGINV ;ANY DIGS LEFT?
2050: F0 0D >31 BEQ NEWRND ;J N.
>32 ;
>33 *****
>34 * TEST IF ALL CHERRIES ARE GONE*
>35 *****
>36 EATTST
2052: A5 89 >37 LDA BDUR
2054: 10 19 >38 BPL SOMLFT ;JP SONG ON.
2056: A2 07 >39 LDX #7
>40 ALGONE
2058: B5 90 >41 LDA CHERRYC,X
205A: 30 13 >42 BMI SOMLFT ;JP SOME CHERRY LEFT.
205C: CA >43 DEX
205D: 10 F9 >44 BPL ALGONE
>45 ;ELSE ALL CHERRIES GONE.

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>47 * PREPARE TO START NEW ROUND->
>48 *****
>49 NEWRND
205F: A9 80 >50 LDA #RESUM
2061: 85 DA >51 STA MODE
>52 ; PLAY ROUND OVER SONG->
2063: A9 00 >53 LDA #SONG1
2065: 20 2C 2D >54 JSR SONG
>55 ;
2068: A9 D8 >56 LDA #$D8 ; SHORT DELAY BETWEEN
206A: 85 84 >57 STA FRAMEL ; SCREENS.
206C: 4C 3C 23 >58 JMP ENDBOT
>59 SOMLFT

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>61
>62 * MR. DO V. DIG HIT TEST-> *
>63 *****
206F: A5 BD >64 LDA DOBAND
2071: 4A >65 LSR
2072: 4A >66 LSR
2073: 4A >67 LSR
2074: 4A >68 LSR
2075: B5 EF >69 STA TEMP1 ;SV DO BAND.
2077: A2 01 >70 LDX #1 ;TRY BOTH DIGGERS-
>71 HIT2
2079: B5 BE >72 LDA DIGBAND,X
207B: 30 15 >73 BMI NXTTRY ;JP DIG IS OFF.
207D: 4A >74 LSR
207E: 4A >75 LSR
207F: 4A >76 LSR
2080: 4A >77 LSR
2081: C5 EF >78 CMP TEMP1 ;ON SAME BAND?
2083: D0 0D >79 BNE NXTTRY ;JP NO.
>80
>81
>82 * DO RANGE TEST FOR HORIZ POS->
>83 *****
2085: 38 >84 SEC
2086: A5 C0 >85 LDA DOPOF
2088: F5 C1 >86 SBC DIGPOF,X
208A: C9 02 >87 CMP #2
208C: 90 17 >88 BCC MDOHIT
208E: C9 FE >89 CMP #$FE
2090: B0 13 >90 BCS MDOHIT
>91 NXTTRY
2092: CA >92 DEX
2093: 10 E4 >93 BPL HIT2 ;TRY OTHER DIGGER.
2095: 4C C0 20 >94 JMP NOHIT ;ELSE TRIED BOTH.
>95 * ADD DIGS BACK TO INVENTORY->
>96 *****
>97 INCINV
2098: A5 BE >98 LDA DIGBAND
209A: 30 02 >99 BMI I15
209C: E6 8A >100 INC DIGINV
>101 I15
209E: A5 BF >102 LDA DIGBAND+1
20A0: 30 02 >103 BMI I19
20A2: E6 8A >104 INC DIGINV
>105 I19
20A4: 60 >106 RTS
>107

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>109 * MR DO IS HIT BY A DIGGER-->
>110 *****
>111 MDOHIT
20A5: A9 20 >112 LDA #DODEAD
20A7: 85 DA >113 STA MODE
>114 ;
>115 NOMORE
20A9: A9 51 >116 LDA #SONG3
20AB: 20 2C 2D >117 JSR SONG ;PLAY DEAD SONG.
20AE: 20 98 20 >118 JSR INCINV ;ADD DIGS BACK.
>119 ;
20B1: A9 00 >120 LDA #0
20B3: 85 B4 >121 STA FRAMEL
20B5: A9 04 >122 LDA #4
20B7: 85 BC >123 STA MISDIR ;BRIEF DELAY.
20B9: A9 FF >124 LDA #$FF
20BB: 85 BA >125 STA MSBAND ;BALL IS UNAVAIL.
20BD: 4C 3C 23 >126 JMP ENDBOT
>127 NOHIT
>128 ;

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>130 *****
>131 * FIELD HIT DETECT
>132 * REMOVE BIT IN FLD MAP WHERE MOST OF MR DO IS-->
>133 * ALSO WHERE DIGGERS ARE.
>134 *****
20C0: A5 BD >135 LDA DOBAND
20C2: A6 C0 >136 LDX DOPOF
20C4: 20 B6 2D >137 JSR FMRMV ;RMV BITS IN FIELD MAP.
>138 ;
>139 * REMOVE FIELD WHERE DIGGERS ARE
>140 *****
20C7: A0 01 >141 LDY #1
. >142 FLDOUT
20C9: B9 CA 00 >143 LDA DIGTIM,Y ;DIGGING?
20CC: 10 0A >144 BPL FMAP2 ;J N.
20CE: B9 BE 00 >145 LDA DIGBAND,Y
20D1: 30 05 >146 BMI FMAP2 ;J DIG OFF.
20D3: B6 C1 >147 LDX DIGPOF,Y
20D5: 20 B6 2D >148 JSR FMRMV ;RMV FIELD.
>149 FMAP2
20D8: 88 >150 DEY
20D9: 10 EE >151 BPL FLDOUT ;DO BOTH.

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>153 *****
>154 * MOVE BADGUYS-CHASE MR.DO--> *
>155 *****
20DB: A5 89 >156 LDA BDUR
20DD: 30 05 >157 BMI MVCHK ;JP MUSIC NOT ON.
20DF: 4C 3C 23 >158 JMP ENDBOT
>159 ;
>160 * MASKS FOR DIGS BEING DRAGGED.
>161 DRAGTB
20E2: 40 20 >162 DFB $40,$20
>163 *****
>164 * A BADGUY/DIGGER ALWAYS CONTINUES MOVING IN A DIRECTION
>165 * UNTIL HE'S IN A CHAR CELL. THIS MEANS WHEN HE HAS TO
>166 * DECIDE WHICH DIRECTION TO MOVE NEXT, HE ALWAYS
>167 * HAS ALL 4 DIRECTIONS TO CHOOSE
>168 *****
>169 MVCHK
20E4: A5 DA >170 LDA MODE
20E6: C9 10 >171 CMP #PLAY
20E8: F0 03 >172 BEQ MVC1 ;J PLAY MODE.
>173 NMOV
20EA: 4C 3C 23 >174 JMP ENDBOT ;ELSE DON'T MOVE DIGS.
>175 MVC1
20ED: A5 84 >176 LDA FRAMEL
20EF: 29 01 >177 AND #1
20F1: AA >178 TAX ;X=WHICH DIG TO MOV.
20F2: E8 >179 INX ;MAKE 1 OR 2.
20F3: BD E1 20 >180 LDA DRAGTB-1,X ;GET DRAG BIT MASK.
20F6: 25 8E >181 AND ANIM8 ;BEING DRAGGED?
20F8: D0 F0 >182 BNE NMOV ;ELSE HE CAN'T MOVE.
20FA: B5 BD >183 LDA DOBAND,X ;GET DIGBAND.
20FC: 30 EC >184 BMI NMOV ;J IF OFF
20FE: B5 C0 >185 LDA DOPOF,X ;GET DIGPOF.
2100: 29 07 >186 AND #7
2102: D0 09 >187 BNE KEEPMV ;JP NOT ON A COL,KEEP MOVING IN LA
ST DIR.
>188 ;
>189 * DIGGER IS ON A COLUMN-->
>190 *****
2104: 85 BD >191 LDA DOBAND,X
2106: 29 0F >192 AND #$0F
2108: D0 03 >193 BNE KEEPMV ;JP NOT W/I A BAND TOO.
210A: 4C A8 21 >194 JMP NEWMOV

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>196 *KEEP DIGGER MOVING IN SAME DIR->
>197 * BECAUSE HE'S NOT IN A CC YET.
>198 *****
>199 KEEPMV
210D: B5 C5 >200 LDA DIGDIR-1,X
210F: 29 03 >201 AND #3 ;KEEP ONLY DIR BITS.
2111: C9 00 >202 CMP #UPD
2113: D0 24 >203 BNE KM5 ;JP NOT UP.
>204 * MOVE HIM UP-->
>205 *****
2115: B4 C7 >206 LDY DIGSPD-1,X
2117: B9 95 2F >207 LDA SPDTBL,Y
211A: 29 01 >208 AND #1
211C: 85 F5 >209 STA TEMP7 ;UP SPD.
>210 MVU2
211E: 20 F7 2B >211 JSR MUP ;MOVE HIM UP.
>212 ;USED T1.
2121: 90 03 >213 BCC MVU3
2123: 4C C0 21 >214 JMP ABORT ;J CAN'T MV.
>215 MVU3
2126: B5 BD >216 LDA DOBAND,X
2128: 29 0F >217 AND #$0F
212A: F0 0A >218 BEQ ENDMV ;IF IN CC DON'T MV AGAIN.
212C: C6 F5 >219 DEC TEMP7
212E: 30 06 >220 BMI ENDMV
2130: A5 D9 >221 LDA RANDOM
2132: 29 02 >222 AND #2
2134: F0 EB >223 BEQ MVU2 ;MV AGAIN.
>224 ENDMV
2136: 4C 3C 23 >225 JMP ENDBOT
>226 KM5
2139: C9 01 >227 CMP #DOWND
213B: D0 21 >228 BNE KM7 ;JP NOT DOWN.
>229 * MOVE HIM DOWN-->
>230 *****
213D: B4 C7 >231 LDY DIGSPD-1,X
213F: B9 95 2F >232 LDA SPDTBL,Y
2142: 29 02 >233 AND #2
2144: 4A >234 LSR
2145: 85 F5 >235 STA TEMP7 ;DOWN SPD.
>236 MVD2
2147: 20 AF 2B >237 JSR MDOWN ;MOV HIM DOWN.
>238 ;USED T1.
214A: B0 74 >239 BCS ABORT ;J CAN'T MOV.
214C: B5 BD >240 LDA DOBAND,X
214E: 29 0F >241 AND #$0F
2150: F0 E4 >242 BEQ ENDMV ;DON'T MV AGAIN IF IN CC.
2152: C6 F5 >243 DEC TEMP7
2154: 30 E0 >244 BMI ENDMV
2156: A9 02 >245 LDA #2
2158: 25 D9 >246 AND RANDOM
215A: F0 EB >247 BEQ MVD2 ;MOVE AGAIN
215C: D0 DB >248 BNE ENDMV
>249 ;
>250 KM7
215E: C9 03 >251 CMP #LEFTH
2160: D0 22 >252 BNE KMRT ;JP NOT LEFT.
>253 * MOVE HIM LEFT-->
>254 *****
>255 KMLFT
2162: B4 C7 >256 LDY DIGSPD-1,X
2164: B9 95 2F >257 LDA SPDTBL,Y
2167: 29 04 >258 AND #4
2169: 4A >259 LSR
216A: 4A >260 LSR

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216E: B5 F5	>261	STA	TEMP7	; LEFT SPD.
216D: 20 A6 2C	>262	KML2		
	>263	JSR	MLEFT	; MOVE HIM LEFT.
	>264			; USED T1,T2,T3,T4.
2170: B0 4E	>265	BCS	ABORT	; J CAN'T MOV.
2172: B5 C0	>266	LDA	DOPOF,X	
2174: 29 07	>267	AND	#7	
2176: F0 BE	>268	BEO	ENDMV	; DON'T MV AGAIN IF IN CC.
2178: C6 F5	>269	DEC	TEMP7	
217A: 30 BA	>270	BMI	ENDMV	
217C: A9 02	>271	LDA	#2	
217E: 25 D9	>272	AND	RANDOM	
2180: F0 EB	>273	BEO	KML2	; MV AGAIN.
2182: D0 B2	>274	BNE	ENDMV	
	>275			;
	>276	* MOVE HIM RIGHT-->		
	>277	*****		
	>278	KMRT		
2184: B4 C7	>279	LDY	DIGSPD-1,X	
2186: B9 95 2F	>280	LDA	SPDTBL,Y	
2189: 29 08	>281	AND	#8	
218B: 4A	>282	LSR		
218C: 4A	>283	LSR		
218D: 4A	>284	LSR		
218E: 85 F5	>285	STA	TEMP7	; RT. SPD.
	>286	KMRT2		
2190: 20 3D 2C	>287	JSR	MRIGHT	; MOVE HIM RIGHT.
	>288			; USED T1,T2,T3,T4.
2193: B0 2B	>289	BCS	ABORT	; J CAN'T MV.
2195: B5 C0	>290	LDA	DOPOF,X	
2197: 29 07	>291	AND	#7	
2199: F0 0A	>292	BEO	EMV	; DON'T MV AGAIN IF IN CC.
	>293			;
219B: C6 F5	>294	DEC	TEMP7	
219D: 30 06	>295	BMI	EMV	
219F: A9 02	>296	LDA	#2	
21A1: 25 D9	>297	AND	RANDOM	
21A3: F0 EB	>298	BEO	KMRT2	; MV AGAIN
	>299	EMV		
21A5: 4C 3C 23	>300	JMP	ENDBOT	

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>302 *****
>303 * DIGGER IS BOTH ON A COL + IN A BAND.
>304 * (IF DIGIQ = NZ TRY TO KP GOING)
>305 *****
>306 NEWMOV
21A8: A9 03 >307 LDA #3
21AA: 85 F3 >308 STA TEMP5 ;INIT # DIR TO TRY.
>309 ;
21AC: B5 CB >310 LDA DIGIQ-1,X
21AE: F0 33 >311 BEQ NEWDIR
21B0: D6 CB >312 DEC DIGIQ-1,X
>313 ;
>314 * IF H/V POS=DO H/V POS THEN ABANDON CCELL RULE.
>315 *****
21B2: A5 BD >316 LDA DOBAND
21B4: 29 70 >317 AND #$70
21B6: D5 BD >318 CMP DOBAND,X
21B8: F0 06 >319 BEQ ABORT
>320 ;
21BA: A5 C0 >321 LDA DOPOF
21BC: D5 C0 >322 CMP DOPOF,X
21BE: D0 07 >323 BNE SAME1
>324 ;
>325 ABORT
21C0: A9 00 >326 LDA #0
21C2: 95 CB >327 STA DIGIQ-1,X
21C4: 4C E3 21 >328 JMP NEWDIR
>329 ;

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>331 * TRY TO CONTINUE IN SAME DIR->
>332 *****
>333 SAME1
21C7: B5 C5 >334 LDA DIGDIR-1,X
21C9: 29 03 >335 AND #3
21CB: C9 00 >336 CMP #UPD
21CD: D0 03 >337 BNE NM1
>338 ;RANDOM 2ND TRY AFT UP.
21CF: 4C 23 22 >339 JMP RNDUP
>340 NM1
21D2: C9 01 >341 CMP #DOWND
21D4: D0 03 >342 BNE NM2
>343 ;RANDOM 2ND TRY AFT DOWN.
21D6: 4C F1 21 >344 JMP RNDDOWN
>345 NM2
21D9: C9 03 >346 CMP #LEFTD
21DB: D0 03 >347 BNE NM3
>348 ;RANDOM 2ND TRY AFT LEFT.
21DD: 4C 4F 22 >349 JMP RNDLEFT
>350 NM3
>351 ;RND 2ND TRY AFT RIGHT.
21E0: 4C 35 22 >352 JMP RNDRT
>353 ;

```

```

>355 * FIGURE WHICH DIRTBL TO USE-->
>356 *****
>357 NEWDIR
21E3: A5 BD >358 LDA DOBAND
21E5: 29 70 >359 AND #$70 ;KP BAND.
21E7: D5 BD >360 CMP DOBAND,X
21E9: B0 30 >361 BCS DIR25 ;JP MR DO ABOVE OR EQ TO DIG.
>362 ;
>363 *****
>364 * MR DO IS BELOW THIS DIGGER-->
>365 *****
21EB: A5 C0 >366 LDA DOPOF
21ED: D5 C0 >367 CMP DOPOF,X
21EF: D0 10 >368 BNE BELOW1
>369 ;RANDOM HOR TRY AFT VERT.
>370 RNDDWN
21F1: A0 12 >371 LDY #DLRU-DIRTBL
21F3: A9 10 >372 LDA #$10
21F5: 25 D9 >373 AND RANDOM
21F7: D0 03 >374 BNE BELOW0
21F9: 4C 63 22 >375 JMP HAVDIR
>376 BELOW0
>377 ;DRLU.
21FC: A0 0C >378 LDY #DRLU-DIRTBL
21FE: 4C 63 22 >379 JMP HAVDIR
>380 BELOW1
2201: 90 0C >381 BCC BLOL ;JP MR DO IS TO LEFT.
>382 ;
>383 * MR DO IS BELOW TO RIGHT->
>384 *****
2203: A0 0C >385 LDY #DRLU-DIRTBL
2205: 20 F7 22 >386 JSR HORV ;WHICH DISTANCE IS GREATER?
>387 ;H-V=
2208: B0 59 >388 BCS HAVDIR ;CHOOSE SHORTEST DISTANCE.
220A: A0 08 >389 LDY #RDUL-DIRTBL
220C: 4C 63 22 >390 JMP HAVDIR ;JP IF ON SAME BAND.

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>392 * MR DO IS BELOW TO LEFT->
>393 *****
>394 BLQL
220F: A0 12 >395 LDY #DLRU-DIRTEL
2211: 20 F7 22 >396 JSR HORV ;H-V=
>397 ;USED T7,T8.
2214: B0 4D >398 BCS HAVDIR ;CHOOSE SHORTEST DISTANCE.
2216: A0 02 >399 LDY #LDUR-DIRTEL
2218: 4C 63 22 >400 JMP HAVDIR
>401 ;
>402 *****
>403 * MR DO IS ABOVE OR EQ TO DIG->
>404 *****
>405 DIR25
221B: 08 >406 PHP ;SV BAND CMP STAT.
221C: A5 C0 >407 LDA DOPOF
221E: D5 C0 >408 CMP DOPOF,X
2220: D0 0E >409 BNE ABOVE1
>410 ;
>411 * SAME POS---FORCE VERT MOVE->
>412 *****
2222: 28 >413 FLP ;FIX SP
>414 ;RANDOM HOR TRY AFT VERT->
>415 RNDUP
2223: A0 06 >416 LDY #ULRD-DIRTEL
2225: A9 08 >417 LDA #8
2227: 25 D9 >418 AND RANDOM
2229: D0 02 >419 BNE ABOVE0
>420 ;URLD.
222B: A0 00 >421 LDY #URLD-DIRTEL
>422 ABOVE0
222D: 4C 63 22 >423 JMP HAVDIR
>424 ABOVE1
2230: 90 1A >425 BCC ABVL ;JP MR DO IS TO LEFT.
>426 * MR DO IS ABOVE TO RIGHT->
>427 *****
2232: 28 >428 FLP
2233: D0 0B >429 BNE ABOVE3 ;J N ON SAME BANDS.
>430 ;RANDOM VERT AFT HOR->
>431 RNDRT
2235: A0 08 >432 LDY #RDUL-DIRTEL
2237: A9 04 >433 LDA #4
2239: 25 D9 >434 AND RANDOM
223B: D0 0A >435 BNE ABOVE2
223D: 4C 63 22 >436 JMP HAVDIR
>437 ABOVE3
2240: A0 00 >438 LDY #URLD-DIRTEL
2242: 20 F7 22 >439 JSR HORV ;H-V=
>440 ;USED T7,T8.
2245: B0 1C >441 BCS HAVDIR ;CHOOSE SHORTEST DIR.
>442 ABOVE2
>443 ;RUDL
2247: A0 14 >444 LDY #RUDL-DIRTEL
2249: 4C 63 22 >445 JMP HAVDIR
>446 ;
>447 * MR DO IS ABOVE TO LEFT->
>448 *****
>449 ABVL
224C: 28 >450 FLP
224D: D0 0B >451 BNE ABOVE6 ;J N ON SAME BANDS.
>452 ;RANDOM VERT AFT TRY HORIZ->
>453 RNDLFT
224F: A9 10 >454 LDA #$10
2251: 25 D9 >455 AND RANDOM
2253: D0 0C >456 BNE ABOVE7

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2255:	A0 02	>457	LDY	#LDIR-DIRTEL	
2257:	4C 63 22	>458	JMP	HAVDIR	
		>459			:
		>460			:
		>461	ABOVE6		
225A:	A0 06	>462	LDY	#ULRD-DIRTEL	
225C:	20 F7 22	>463	JSR	HORV	;H-V=
		>464			;USED T7,T8.
225F:	B0 02	>465	BCS	HAVDIR	;CHOOSE SHORTEST DISTANCE.
		>466	ABOVE7		
		>467			;LUDR
2261:	A0 0E	>468	LDY	#LUDR-DIRTEL	
		>469			:
		>470	HAVDIR		
2263:	84 F4	>471	STY	TEMP6	;SV PTR TO DIRTEL.
2265:	4C CD 22	>472	JMP	SEARCH	;START SEARCH.


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>474 *****
>475 * TRY TO MOVE BADGUY RIGHT-->
>476 *****
>477 MDRT
2268: B5 C0 >478 LDA DOPOF,X
226A: 1B >479 CLC
226B: 69 08 >480 ADC #8 ;TEST POS+8.
226D: A8 >481 TAY
226E: B5 BD >482 LDA DOBAND,X
2270: 20 79 2D >483 JSR CCTST ;SEE IF FIELD ON THERE.
>484 ;USED T1-T4.
2273: F0 03 >485 BEQ MDRT2
2275: 4C C7 22 >486 JMP NOGOOD ;JP IF ON.
>487 MDRT2
2278: 20 3D 2C >488 JSR MRIGHT ;TRY RT.
>489 ;USED T1-T3.
227B: 90 03 >490 BCC MDRT4 ;JP IF COULD GO LEFT.
227D: 4C C7 22 >491 JMP NOGOOD
>492 MDRT4
2280: A9 02 >493 LDA #RIGHTD ;NEW DIR.
2282: 4C E4 22 >494 JMP DIDMOV
>495 ;

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>497 *****
>498 * TRY TO MOVE BADGUY LEFT-->
>499 *****
>500 MDLT
2285: 85 BD >501 LDA DOEAND,X
2287: 84 C0 >502 LDY DOPOF,X
2289: F0 3C >503 BEQ NOGOOD ;JP IF AT EDGE.
228B: 88 >504 DEY ;POS-1.
228C: 20 79 2D >505 JSR CCTST ;FLD ON?
>506 ;USED T1-T4.
228F: D0 36 >507 BNE NOGOOD ;JP YES (NOT MOWED).
2291: 20 A6 2C >508 JSR MLEFT ;TRY LT.
>509 ;USED T1-T4.
2294: B0 31 >510 BCS NOGOOD
2296: A9 03 >511 LDA #LEFTD ;NEW DIR.
2298: 4C E4 22 >512 JMF DIDMOV
>513 ;

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```

>515 *****
>516 * TRY TO MOVE BADGUY DOWN-->
>517 *****
>518 MDDN
229B: B5 BD >519 LDA DOBAND,X
229D: B4 C0 >520 LDY DOPOF,X
>521 ;TEST IF FLD MOWED BELOW DIG->
229F: 38 >522 SEC
22A0: E9 10 >523 SBC ##10 ;BAND-1.
22A2: 20 79 2D >524 JSR CCTST ;USED T1-T4.
>525
22A5: D0 20 >526 BNE NOGOOD ;
>527 ;
22A7: 20 AF 2B >528 JSR MDOWN ;TRY DN.
>529 ;USED T1.
22AA: B0 1B >530 BCS NOGOOD
22AC: A9 01 >531 LDA #DOWND ;NEW DIR.
22AE: 4C E4 22 >532 JMF DIDMOV

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```

>534 *****
>535 * TRY TO MOVE BADGUY UP-->
>536 *****
>537 MDUP
22B1: B5 BD >538 LDA DOBAND,X
22B3: B4 C0 >539 LDY DOPOF,X
22B5: 18 >540 CLC
22B6: 69 10 >541 ADC #$10 ;BAND+1.
22B8: 20 79 2D >542 JSR CCTST ;MOWED?
>543 ;USED T1-T4.
22BB: D0 0A >544 BNE NOGOOD ;JP NO.
>545 ;
22BD: 20 F7 2B >546 JSR MUP ;TRY TO MOVE UP.
>547 ;USED T1.
22C0: B0 05 >548 BCS NOGOOD
>549 ;
22C2: A9 00 >550 LDA #UPD ;NEW DIR.
22C4: 4C E4 22 >551 JMP DIDMOV

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>553 *****
>554 * LAST MOVE TRIED WAS NOT LEGAL.
>555 * TRY SOMETHING ELSE-->
>556 *****
>557 NOGOOD
22C7: C6 F3 >558 DEC TEMP5
22C9: 30 29 >559 BMI NG99 ;JP IF TRIED ALL 4 DIRECTIONS.
22CB: E6 F4 >560 INC TEMP6 ;UP DIRTBL IDX.
>561 SEARCH
22CD: A4 F4 >562 LDY TEMP6 ;GET DIR-TO-TRY-NEXT IDX.
22CF: B9 24 23 >563 LDA DIRTBL,Y
22D2: C9 00 >564 CMP #UPD
22D4: F0 DB >565 BEQ MDUP ;JP IF UP.
22D6: C9 01 >566 CMP #DOWND
22D8: F0 C1 >567 BEQ MDDN ;JP IF DOWN.
22DA: C9 03 >568 CMP #LEFTD
22DC: F0 03 >569 BEQ MDLTJP JP IF LEFT.
22DE: 4C 68 22 >570 JMP MDRT ;ELSE MUST BE RIGHT.
>571 MDLTJP
22E1: 4C 85 22 >572 JMP MDLT
>573 ;
>574 * THE NEW MOVE HAS BEEN MADE
>575 *****
>576 DIDMOV
22E4: 95 C5 >577 STA DIGDIR-1,X ;SV NEW DIR.
22E6: A5 F3 >578 LDA TEMP5
22E8: C9 03 >579 CMP #3 ;WAS IT FIRST TRY?
22EA: F0 08 >580 BEQ NG99 ;J Y.
22EC: A5 D9 >581 LDA RANDOM
22EE: 29 0F >582 AND #$0F
22F0: 69 01 >583 ADC #1 ;MAKE NZ.
22F2: 95 CB >584 STA DIGIO-1,X ;REINIT IO.
>585 NG99
22F4: 4C 3C 23 >586 JMP ENDBOT ;JP DONE ALL BADGUYS/DIGGERS.
>587 ;

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```

>589 * WHICH DISTANCE IS GREATER H/V?
>590 *****
>591 HORV
22F7: A5 BD >592 LDA DOBAND
22F9: 29 70 >593 AND #$70
22FB: 38 >594 SEC
22FC: F5 BD >595 SBC DOBAND, X
22FE: 10 05 >596 BPL NOBOR ;J PLUS RESULT.
2300: 49 FF >597 EOR $$FF ;MAKE PLUS.
2302: 18 >598 CLC
2303: 69 01 >599 ADC #1
>600 NOBOR
2305: 4A >601 LSR
2306: 4A >602 LSR
2307: 4A >603 LSR
2308: 4A >604 LSR
2309: 85 F5 >605 STA TEMP7 ;SV V DIF.
>606 ;
230B: A5 C0 >607 LDA DOPOF
230D: 4A >608 LSR
230E: 4A >609 LSR
230F: 4A >610 LSR ; /8.
2310: 85 F6 >611 STA TEMP8
2312: B5 C0 >612 LDA DOPOF, X
2314: 4A >613 LSR
2315: 4A >614 LSR
2316: 4A >615 LSR ; /8.
2317: 38 >616 SEC
2318: E5 F6 >617 SBC TEMP8 ;DIGPOF-DOPOF.
231A: 10 05 >618 BPL NOBOR2
231C: 49 FF >619 EOR $$FF
231E: 18 >620 CLC
231F: 69 01 >621 ADC #1
>622 NOBOR2
2321: C5 F5 >623 CMP TEMP7
2323: 60 >624 RTS
>625 ;
>626 * NEXT DIRECTION TO TRY TABLE-->
>627 *****
>628 DIRTBL
>629 URDL
2324: 00 02 >630 DFB UPD, RIGHTD
>631 LDUR
2326: 03 01 00 >632
2329: 02 >633 DFB LEFTD, DOWND, UPD, RIGHTD
>634 ULRD
232A: 00 03 >635 DFB UPD, LEFTD
>636 RDUL
232C: 02 01 00 >637
232F: 03 >638 DFB RIGHTD, DOWND, UPD, LEFTD
>639 DRLU
2330: 01 02 >640 DFB DOWND, RIGHTD
>641 LUDR
2332: 03 00 01 >642
2335: 02 >643 DFB LEFTD, UPD, DOWND, RIGHTD
>644 DLRU
2336: 01 03 >645 DFB DOWND, LEFTD
>646 RUDL
2338: 02 00 01 >647
233B: 03 >648 DFB RIGHTD, UPD, DOWND, LEFTD
>649 ENDBOT

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43 *****
44 * APPLE CONTROL CODE *
45 *****
46 PUT MR.DO.APPLE
>1 */ MR.DO.APPLE LASTED 8/3/83.
>2 ;
>3 * APPLE FALLING TEST-->
>4 *****
>5 APPLE
233C: A5 8D >6 LDA AFFALL
233E: 10 3B >7 BPL FALLMON ;JP IF AN APPLE IS FALLING.
2340: A5 84 >8 LDA FRAMEL ;TEST IF 1 CAN FALL.
2342: 29 03 >9 AND #3
2344: AA >10 TAX ;ONLY TEST 1 PER FRAME.
2345: B5 D0 >11 LDA APBAND,X
2347: 30 1B >12 BMI NF9 ;JP APPLE NOT ON.
2349: 29 70 >13 AND #$70
234B: F0 17 >14 BEQ NF9 ;JP SITTING IN BOTTOM BAND.
>15 * TEST IF FIELD ON UNDER APPLE->
>16 *****
234D: B5 D4 >17 LDA APPOF,X
234F: 29 07 >18 AND #7 ;ON COLUMN?
2351: C9 04 >19 CMP #4 ;SHOULD WE LOOK IN COLUMN TO RT.
2353: B5 D4 >20 LDA APPOF,X
2355: 90 02 >21 BCC NF5 ;JP NO.
2357: 69 07 >22 ADC #7
>23 NF5
2359: A8 >24 TAY ;Y=POS TO CHK.
235A: B5 D0 >25 LDA APBAND,X
235C: 38 >26 SEC
235D: E9 10 >27 SBC #$10 ;BAND-1.
235F: 20 89 2D >28 JSR CCTEST
2362: F0 03 >29 BEQ STFALL ;JP FLD OFF.
>30 NF9
2364: 4C D7 24 >31 JMP FALL99 ;JP CAN'T FALL.
>32 ;
>33 * START APPLE FALLING-->
>34 *****
>35 STFALL
2367: 8A >36 TXA ;GET WHICH APPLE.
2368: 0A >37 ASL
2369: 0A >38 ASL
236A: 0A >39 ASL
236B: 0A >40 ASL
236C: 09 0F >41 ORA #$0F ;SET TIMER.
236E: 85 8D >42 STA AFFALL
>43 ;START ROCKING IMG->
2370: B5 D0 >44 LDA APBAND,X
2372: 29 F0 >45 AND #$F0
2374: 09 01 >46 ORA #1 ;IMG IDX = 1.
2376: 95 D0 >47 STA APBAND,X
2378: 4C D7 24 >48 JMP FALL99

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>50 * AN APPLE IS ALREADY FALLING-->
>51 *****
>52 FALLMON
237B: 4A >53 LSR
237C: 4A >54 LSR
237D: 4A >55 LSR
237E: 4A >56 LSR
237F: AA >57 TAX ;X=WHICH AP IS FALLING.
2380: C6 8D >58 DEC AFFALL ;DEC TIMER.
>59 ;IS TIME UP?
2382: A5 8D >60 LDA AFFALL
2384: 29 0F >61 AND #$0F
2386: F0 03 >62 BEQ F03 ;JP TIME IS UP.
2388: 4C D7 24 >63 JMP FALL99
>64 *****
>65 * APPLE STAGE TIMER IS UP.
>66 * DECIDE TO KP FALLING, BREAK, OR SIT->
>67 *****
>68 F03
238B: B5 D0 >69 LDA APBAND,X
238D: 29 0F >70 AND #$0F ;GET IMG IDX.
238F: C9 01 >71 CMP #1
2391: D0 05 >72 BNE F44
>73 ;START ROCK2 IMG->
2393: F6 D0 >74 INC APBAND,X ;IMG IDX=2.
2395: 4C 59 24 >75 JMP SETTIM
>76 F44
2398: C9 02 >77 CMP #2
239A: D0 15 >78 BNE F55 ;JP NOT 2ND ROCK STAGE.
239C: F6 D0 >79 INC APBAND,X ;IMG IDX=3 (FALLING APPLE).
>80 ;MOVE APPLE TO NEAREST COLUMN->
239E: B5 D4 >81 LDA APPOF,X
23A0: 29 07 >82 AND #7
23A2: C9 04 >83 CMP #4
23A4: B5 D4 >84 LDA APPOF,X
23A6: 90 02 >85 BCC F47 ;JP NO ADJUST RIGHT NEEDED.
23A8: 59 07 >86 ADC #7
>87 F47
23AA: 29 F8 >88 AND #$F8 ;RMV LO 3 BITS.
23AC: 95 D4 >89 STA APPOF,X
23AE: 4C 59 24 >90 JMP SETTIM
>91 F55
23B1: C9 03 >92 CMP #3 ;FALLING DOWN?
23B3: F0 18 >93 BEQ MIDAIR ;JP YES.
23B5: C9 04 >94 CMP #4 ;BREAKING STAGE 1?
23B7: F0 0F >95 BEQ F57 ;J Y.
>96 ;
>97 * MUST BE DONE W/LAST BRK STAGE->
>98 *****
>99 AFRMV
23B9: A9 80 >100 LDA #$80
23BB: 95 D0 >101 STA APBAND,X ;APPLE OFF.
23BD: 85 8D >102 STA AFFALL ;NO AP FALLING NOW.
23BF: A9 1F >103 LDA #$1F
23C1: 25 8E >104 AND ANIM8 ;CLR DRAG BITS.
23C3: 85 8E >105 STA ANIM8
23C5: 4C D7 24 >106 JMP FALL99
>107 F57
23C8: F6 D0 >108 INC APBAND,X ;IMG IDX=4 =BRKING STAGE 2.
23CA: 4C 59 24 >109 JMP SETTIM
>110 ;

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>112 ;
>113 * KEEP MOVING APPLE DOWN IF NO FIELD (OR NOT ALREADY AT BOT
OM) .
>114 *****
****
>115 MIDAIR
23CD: B5 D0 >116 LDA APBAND,X
23CF: 29 70 >117 AND #$70
23D1: D0 03 >118 BNE MID5
23D3: 4C 62 24 >119 JMP SITBRK ;J AT BOTTOM.
>120 MID5
23D6: B5 D0 >121 LDA APBAND,X
23D8: 38 >122 SEC
23D9: E9 10 >123 SBC #$10 ;BAND-1.
23DB: B4 D4 >124 LDY APPOF,X
23DD: 20 89 2D >125 JSR CCTEST ;FLD ON BELOW?
23E0: F0 03 >126 BEQ MID15 ;JP FLD IS OFF.
23E2: 4C 62 24 >127 JMP SITBRK ;FLD IS ON.
>128 * MOVE APPLE DOWN (FLD IS OFF)
>129 *****
>130 MID15
23E5: 95 D0 >131 STA APBAND,X ;SV NEW BAND NUM.
23E7: 29 70 >132 AND #$70 ;KPBAND.
23E9: 85 F0 >133 STA TEMP2
23EB: A9 0A >134 LDA #$0A ;SET UP FALL/FRAE TIMER.
23ED: 05 8D >135 ORA AFFALL
23EF: 85 8D >136 STA AFFALL
>137 ;
>138 * TEST IF MR DO OR DIGS HIT BY APPLE->
>139 *****
23F1: A0 02 >140 LDY #2
>141 DRAGT
23F3: B9 CA 24 >142 LDA DMASK,Y
23F6: 25 8E >143 AND ANIM8 ;MR DO ALREADY HIT BY APPLE?
23F8: F0 10 >144 BEQ NYET ;J N.
>145 ;
>146 *MR DO/DIG BEING DRAGGED. MOVE HIM DOWN-->
>147 *****
23FA: B9 BD 00 >148 LDA DOBAND,Y
23FD: 30 54 >149 BMI NXTTST ;JP OFF
23FF: 38 >150 SEC
2400: E9 10 >151 SBC #$10 ;BAND-1
2402: 29 F0 >152 AND #$F0 ;LN=0
2404: 99 BD 00 >153 STA DOBAND,Y
2407: 4C 53 24 >154 JMP NXTTST
>155 ;

```

```

>157 * SHOULD MR DO/DIG BE DRAGGED?-->
>158 *****
>159 NYET
>160 ;TEST HORIZ-->
240A: B9 C0 00 >161 LDA DOPOF,Y
240D: D5 D4 >162 CMP APPOF,X
240F: F0 16 >163 BEQ VTEST ;J SAME POS.
2411: 90 0E >164 BCC AFRITE ;JP DOPOS<APPOS.
>165 ;DOPOS>APPOS.
2413: E9 07 >166 SBC #7
2415: 10 02 >167 BPL APLEFT ;J NO WRAP.
2417: A9 00 >168 LDA #0 ;DON'T LET WRAP.
>169 APLEFT
2419: D5 D4 >170 CMP APPOF,X
241B: F0 0A >171 BEQ VTEST ;J SAME.
241D: B0 34 >172 BCS NXTTST ;J NO HIT
241F: 90 06 >173 BCC VTEST
>174 AFRITE
2421: 69 07 >175 ADC #7
2423: D5 D4 >176 CMP APPOF,X
2425: 90 2C >177 BCC NXTTST ;J NO HIT.
>178 ;TEST VERT-->
>179 VTEST
2427: B9 BD 00 >180 LDA DOBAND,Y
242A: 30 27 >181 BMI NXTTST ;J OFF.
242C: 29 70 >182 AND #$70 ;KF BAND.
242E: 38 >183 SEC
242F: E5 F0 >184 SBC TEMP2 ;AF BAND.
2431: F0 19 >185 BEQ DRAGIT
2433: C9 10 >186 CMP #$10 ;IS DO/DIG 1 ABOVE?
2435: D0 1C >187 BNE NXTTST ;J N.
>188 ;DROP HIM A BAND.
2437: B9 BD 00 >189 LDA DOBAND,Y
243A: 29 0F >190 AND #$0F ;LN=0?
243C: D0 03 >191 BNE DRAGEM ;J N.
243E: 98 >192 TYA
243F: F0 12 >193 BEQ NXTTST ;J MR DO.
>194 ;
>195 DRAGEM
2441: B9 BD 00 >196 LDA DOBAND,Y
2444: 38 >197 SEC
2445: E9 10 >198 SBC #$10
2447: 29 F0 >199 AND #$F0 ;LN=0
2449: 99 BD 00 >200 STA DOBAND,Y
>201 ;NOW DRAG HIM-->
>202 * START DRAGGING MR DO OR DIG-->
>203 *****
>204 DRAGIT
244C: B9 CA 24 >205 LDA DMASK,Y
244F: 05 8E >206 ORA ANIM8 ;SET BEING DRAGGED BIT.
2451: 85 8E >207 STA ANIM8
>208 ;
>209 NXTTST
2453: 88 >210 DEY
2454: 10 9D >211 BPL DRAGT ;TEST ALL 3.
2456: 4C D7 24 >212 JMP FALL99
>213 ;

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2459: A9 0F >215 SETTIM
245B: 05 8D >216
245D: 85 8D >217
245F: 4C D7 24 >218
245F: 4C D7 24 >219

LDA ##0F
ORA AFFALL
STA AFFALL
JMP FALL99

;SET UP 15 FRAME TIMER.
;
;SET TIMER.
;KP FALLING IF FLD IS NOT ON.

```

>221
>222 * APPLE CAN NOT FALL ANY FURTHER.
>223 * TEST IF APPLE HAS FALLEN MORE
>224 * THAN 1 BAND FROM ORGIN-->
>225 * ALSO RMV ANYONE DRAGGED DOWN.*
>226 *****
>227 SITBRK
2462: A5 8E >228 LDA ANIM8 ;GET DRAG FLAGS.
2464: 29 E0 >229 AND #$E0 ;ANY DRAGS?
2466: F0 3B >230 BEQ SB25 ;J N DRAGS.
>231 ;
2468: A9 40 >232 LDA #$40
246A: 25 8E >233 AND ANIM8
246C: F0 0A >234 BEQ SB7 ;J DIG 1 NOT DRAGGED.
246E: A9 81 >235 LDA #$81
2470: 85 BE >236 STA DIGBAND ;DIG 1 OFF.
>237 *****
>238 *REV VIDEO LETTER IF ALF MNSTR *
>239 *****
2472: 20 82 2B >240 JSR REVVID
2475: 20 CD 24 >241 JSR ADD1K ;1000 PTS.
>242 SB7
2478: A9 20 >243 LDA #$20
247A: 25 8E >244 AND ANIM8
247C: F0 07 >245 BEQ SB70 ;J DIG2 NOT DRAGGED.
247E: A0 81 >246 LDY #$81
2480: 84 BF >247 STY DIGBAND+1 ;DIG2 OFF.
2482: 20 CD 24 >248 JSR ADD1K ;1000 PTS.
>249 SB70
2485: A5 8E >250 LDA ANIM8
2487: 10 17 >251 BFL SB88 ;J MR DO NOT DRAGGED.
>252 ;
2489: A9 81 >253 LDA #$81
248B: 85 BD >254 STA DOBAND ;DO OFF
248D: A9 20 >255 LDA #DODEAD
248F: 85 DA >256 STA MODE
2491: A9 00 >257 LDA #0
2493: 85 84 >258 STA FRAMEL
2495: A9 FF >259 LDA #$FF
2497: 85 BA >260 STA MSBAND ;BALL NOT AVAIL.
2499: A9 04 >261 LDA #4
249B: 85 BC >262 STA MISDIR ;BRIEF DELAY.
>263 ;
>264 * ADD BACK ANY DIGGERS NOT DEAD->
>265 *****
249D: 20 98 20 >266 JSR INCINV
>267 SB88
24A0: 4C BC 24 >268 JMP BRKIT ;BRK APPLE-IT HIT SOMEONE.
>269 SB25
24A3: B5 D0 >270 LDA APBAND,X ;GET BAND.
24A5: 29 70 >271 AND #$70 ;KP BAND.
24A7: 38 >272 SEC
24A8: FD C6 24 >273 SBC ORGTBL,X ;SUB BAND NUM IT STARTED ON.
24AB: C9 F0 >274 CMP #$F0
24AD: D0 0D >275 BNE BRKIT ;JP IF FELL MORE THAN 1.
>276 ;LET APPLE SIT->
24AF: A9 80 >277 LDA #$80
24B1: 85 BD >278 STA APFALL ;APPLE DONE FALLING.
24B3: B5 D0 >279 LDA APBAND,X
24B5: 29 F0 >280 AND #$F0
24B7: 95 D0 >281 STA APBAND,X ;IMG IDX=0.
24B9: 4C D7 24 >282 JMP FALL99
>283 * START BREAKING ANIMATION->
>284 *****
>285 BRKIT

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24BC: F6 D0 >286 INC APBAND,X ;IMG IDX=4 (BRK STAGE 1).
>287 ;MAKE BREAKING SOUND->
24BE: A9 00 >288 LDA #DEADSND
24C0: 20 41 2D >289 JSR HISND ;HI PRIORITY SND.
>290 ;X DESTROYED.
24C3: 4C 59 24 >291 JMP SETTIM
>292 *****
>293 * APPLE BAND ORGIN TABLE->
>294 ORGTBL
>295 *****
24C6: 70 50 30
24C9: 10 >296 DFB $70,$50,$30,$10
>297 ;
>298 * MASKS FOR BEING DRAGGED (ANIM8)
>299 *****
>300 DMASK
24CA: 80 40 20 >301 DFB $80,$40,$20 ;MR.DO,DIG1,DIG2.
>302 ADD1K
24CD: A9 50 >303 LDA #$50
24CF: 20 23 2B >304 JSR ADDPTS
24D2: A9 50 >305 LDA #$50
24D4: 4C 23 2B >306 JMP ADDPTS ;J THEN RET TO CALLER OF THIS RTN.
>307 ;
>308 FALL99

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48 *****
49 * VERTICAL RETRACE CODE *
50 *****
51 PUT MR.DO.VINT
>1 */MR.DO.VINT LASTED: 9/14/83
>2 *
>3 *****
>4 * VERTICAL RETRACE *
>5 *****
>6 * WAIT FOR END OF BOTVI-->
>7 *****
>8 THEEND
>9 ENDTIM

24D7: AD 84 02 >10 LDA TIMER
24DA: 30 FB >11 BMI ENDTIM
>12 ;
24DC: A9 B3 >13 LDA #TOPTIM
24DE: 85 02 >14 STA ATWAIT ;VINT WAIT #1
24E0: 8D 96 02 >15 STA TIME64 ;START VINT TIMER.
>16 ;UP FRAME COUNTER->
24E3: E6 84 >17 INC FRAMEL
24E5: D0 1F >18 BNE ALF99 ;JP NO OV.
24E7: E6 85 >19 INC FRAMEH
>20 ;
>21 * ADVANCE CHANNEL SELECT-->
>22 *****
24E9: A9 02 >23 LDA #2
24EB: 25 8E >24 AND ANIM8 ;ALF MONSTER OUT?
24ED: D0 17 >25 BNE ALF99 ;J Y.
24EF: A5 8B >26 LDA ALPHA
24F1: 29 07 >27 AND #7
24F3: AA >28 TAX
24F4: E8 >29 INX
24F5: E0 05 >30 CPX #5
24F7: D0 02 >31 BNE UPALPH ;JP NO WRAP NEEDED.
24F9: A2 00 >32 LDX #0
>33 UPALPH
24FB: A9 F8 >34 LDA #$FF-7
24FD: 25 8B >35 AND ALPHA
24FF: 85 8B >36 STA ALPHA
2501: 8A >37 TXA
2502: 05 8B >38 ORA ALPHA
2504: 85 8B >39 STA ALPHA ;SV NEW CHANNEL SELECT.
>40 ALF99
>41 ;50 CY MAX->
>42 * MAINTAIN CHERRY EATING TIMER-->
>43 *****
2506: A5 84 >44 LDA FRAMEL
2508: 29 01 >45 AND #1
250A: F0 0C >46 BEQ NOTIM ;JP NOT TIME TO UPDATE.
250C: A5 8C >47 LDA CHERRYT
250E: 29 1F >48 AND #$1F
2510: D0 04 >49 BNE EAT5 ;JP TIME NOT EXPIRED.
2512: 85 8C >50 STA CHERRYT ;START NOTE PTR OVER.
2514: F0 02 >51 BEQ NOTIM
>52 EAT5
2516: C6 8C >53 DEC CHERRYT ;DEC TIMER FOR EATING.
>54 NOTIM

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>56 *****
>57 *   TURN   GUN   OFF---)   *
>58 *****
>59 WAIT2
2518: A9 02 >60 LDA   #$02           ;RESET JOY BUTTONS.
251A: 85 02 >61 STA   ATWAIT        ;VINT WAIT #2.
251C: 85 01 >62 STA   ATBLNK       ;TURN GUN OFF.
>63 *ARE BOTH DIGGERS ON IF POSSIBLE?
>64 *****
251E: A5 89 >65 LDA   BDUR           ;DON'T CHK IF MUSIC ON.
2520: 10 2A >66 BPL   WAIT3          ;ANY DIGS LEFT?
2522: A5 8A >67 LDA   DIGINV        ;J N.
2524: F0 26 >68 BEQ   WAIT3          ;
>69 ;
2526: A5 84 >70 LDA   FRAMEL
2528: 29 7F >71 AND   #$7F
252A: D0 20 >72 BNE   WAIT3          ;CHK EV 2 SECS.
252C: A2 00 >73 LDX   #0
252E: B5 BE >74 LDA   DIGBAND,X
2530: 30 05 >75 BMI   D1ON          ;J DIG1 IS OFF.
2532: E8 >76 INX
2533: B5 BE >77 LDA   DIGBAND,X
2535: 10 15 >78 BPL   WAIT3          ;J HE'S ON TOO.
>79 D1ON
>80 ;TURN HIM ON->
2537: A9 38 >81 LDA   #56
2539: 95 C1 >82 STA   DIGPOF,X
253B: A9 40 >83 LDA   #$40
253D: 95 BE >84 STA   DIGBAND,X
253F: A9 00 >85 LDA   #0
2541: 95 C4 >86 STA   DIGDAT,X
2543: B4 C8 >87 LDY   DIGSPD,X
2545: B9 6D 2F >88 LDA   DTIME,Y
2548: 95 CA >89 STA   DIGTIM,X        ;SET UP TIME TILL DIGGING.
254A: C6 8A >90 DEC   DIGINV          ;1 LESS DIG.

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2540: 85 02 >92 WAIT3
                >93 STA ATWAIT ;VINT WAIT #3.
                >94 * HAVE ALL LETTERS BEEN HAD?
                >95 *****
254E: A5 DA >96 LDA MODE
2550: C9 10 >97 CMP #PLAY
2552: D0 21 >98 BNE WAIT4 ;J NOT PLAY MODE.
                >99 ;
2554: A9 F8 >100 LDA #$F8
2556: 25 8B >101 AND ALPHA
2558: C9 F8 >102 CMP #$F8
255A: D0 19 >103 BNE WAIT4 ;J NOT ALL HAD.
255C: A9 00 >104 LDA #0
255E: 85 8B >105 STA ALPHA ;CLR REV VIDEO.
                >106 * GIVE AN EXTRA MR.DO-->
                >107 *****
2560: A5 DB >108 LDA DOINV
2562: C9 06 >109 CMP #6
2564: F0 02 >110 BEQ NOXTRA ;J HAVE MAX.
2566: E6 DB >111 INC DOINV ;ADD 1 TO INV.
                >112 NOXTRA
2568: A9 00 >113 LDA #0 ;DANCE L TO R.
256A: 85 C0 >114 STA DOPOF
                >115 ;
                >116 * SET EXTRA MR DO MODE---->
                >117 *****
256C: A9 70 >118 LDA #XTRADO ;SET EXTRA MR DO MODE.
256E: 85 DA >119 STA MODE
                >120 ;
2570: A9 00 >121 LDA #SONG1
2572: 20 2C 2D >122 JSR SONG ;PLAY SONG

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>124 WAIT4
2575: 85 02 >125 STA ATWAIT ;VINT WAIT #4.
2577: A5 DA >126 LDA MODE
2579: C9 40 >127 CMP #GAMOVR
257B: D0 0B >128 BNE W44 ;J NOT GAME OVER MODE.
257D: A5 85 >129 LDA FRAMEH
257F: F0 66 >130 BEQ WAIT5
>131 ;
>132 * SET TRACK MODE-->
>133 *****
>134 SETTRK
2581: A9 50 >135 LDA #TRACK
2583: 85 DA >136 STA MODE ;SET TRACK MODE.
2585: 4C E7 25 >137 JMP WAIT5
>138 W44
2588: C9 30 >139 CMP #SELECT
258A: D0 0B >140 BNE W45
258C: A5 85 >141 LDA FRAMEH
258E: C9 0A >142 CMP #10
2590: D0 55 >143 BNE WAIT5
2592: F0 ED >144 BEQ SETTRK ;SET TRACK MODE->
>145 W45
2594: C9 20 >146 CMP #DODEAD
2596: D0 4F >147 BNE WAIT5
>148 ;
>149 * SEE IF MR.DO IS ON-->
>150 *****
2598: A5 84 >151 LDA FRAMEL
259A: C9 80 >152 CMP #$80
259C: F0 1A >153 BEQ W47 ;J TO TURN ON MR DO.
>154 ;
259E: C9 40 >155 CMP #$40
25A0: D0 45 >156 BNE WAIT5
>157 ;
25A2: A9 FF >158 LDA #$FF
25A4: 85 BD >159 STA DOBAND ;DO OFF.
25A6: 85 BE >160 STA DIGBAND
25A8: 85 BF >161 STA DIGBAND+1
25AA: 85 BA >162 STA MSBAND ;PWRBALL NOT ON YET.
25AC: A9 00 >163 LDA #0
25AE: 85 C4 >164 STA DIGDAT
25B0: 85 C5 >165 STA DIGDAT+1
25B2: 85 8E >166 STA ANIM8 ;CLR DRAG BITS.
25B4: 85 BC >167 STA MISDIR ;SHORT DELAY.
25B6: F0 2F >168 BEQ WAIT5
>169 ;
>170 W47
25B8: A5 DB >171 LDA DOINV
25BA: D0 1B >172 BNE W46 ;J SOME LEFT.
>173 ;
>174 * GAME IS OVER!!!
>175 *****
>176 GOVER
25BC: A9 40 >177 LDA #GAMOVR ;START GAME OVER MODE.
25BE: 85 DA >178 STA MODE
>179 ;
25C0: A9 00 >180 LDA #0
25C2: 85 84 >181 STA FRAMEL
25C4: 85 85 >182 STA FRAMEH ;4 SEC GAME OVER SCREEN.
>183 ;GAME OVER SONG->
25C6: A9 31 >184 LDA #SONG2
25C8: 20 2C 2D >185 JSR SONG
>186 ;
25CB: A9 38 >187 LDA #56
25CD: 85 C0 >188 STA DOPCF
25CE: A9 5F >189 LDA #5F

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250F: A9 FF	>199	LDA	#\$FF	
25D1: 85 BE	>190	STA	DIGBAND	;DIGS OFF.
25D3: 85 BF	>191	STA	DIGBAND+1	
25D5: D0 10	>192	BNE	WAIT5	
	>193			:
	>194	*****		
	>195	* PUT MR DO BACK ON SCREEN *		
	>196	*****		
	>197	W46		
25D7: C6 DB	>198	DEC	DOINV	;1 LESS MR DO.
	>199			:
25D9: A9 10	>200	LDA	#PLAY	
25DB: 85 DA	>201	STA	MODE	
25DD: A9 38	>202	LDA	#56	
25DF: 85 C0	>203	STA	DOPOF	
25E1: A9 00	>204	LDA	#0	
25E3: 85 BD	>205	STA	DOBAND	
25E5: 85 DB	>206	STA	PWRTIM	;SET PWRTIMER TO 0.

25E7: A9 02 >208 WAIT5
25E9: 85 02 >209
25EB: 85 00 >210
25ED: A5 DA >211
25EF: C9 80 >212
25F1: D0 0C >213
25F3: A5 84 >214
25F5: D0 08 >215
25F7: E6 81 >216
25F9: 20 A7 29 >217
25FC: 4C 03 26 >218
 >219
 >220

LDA #2
STA ATWAIT ;VINT WAIT #5.
STA ATSYNC ;BRING GUN HOME.
LDA MODE
CMP #RESUM
BNE WAIT6
LDA FRAMEL
BNE WAIT6 ;BLACK SCREEN.
INC ROUND
JSR IROUND ;START FLAY MODE AGAIN.
JMP WAIT7
;

25FF: 85 0C	>222	WAIT6	STA ATWAIT	:VINT WAIT #6
2601: E6 D9	>223		INC RANDOM	:FREE RUNNING RANDOM #.
	>224			
2603: 85 02	>225	WAIT7	STA ATWAIT	:
	>226			
2605: A5 DA	>227			
2607: C9 70	>228		LDA MODE	
2609: D0 12	>229		CMP #XTRADO	
	>230		BNE NOX	:J NOT EXTRA MR DO MODE.
	>231			:DANCE R TO L.
260B: A5 84	>232		LDA FRAMEL	
260D: 29 01	>233		AND #1	
260F: D0 0C	>234		BNE NOX	
2611: E6 C0	>235		INC DOPOF	
2613: 10 08	>236		BPL NOX	
	>237			:SET RESUME MODE->
2615: A9 80	>238		LDA #RESUM	
2617: 85 DA	>239		STA MODE	
2619: A9 E8	>240		LDA #E8	:SHORT DELAY.
261B: 85 84	>241		STA FRAMEL	
	>242	NOX		
261D: A9 00	>243		LDA #0	
261F: 85 02	>244		STA ATWAIT	
2621: 85 00	>245		STA ATSYNC	
	>246			:
2623: A9 00	>247		LDA #BLACK	
2625: 85 09	>248		STA ATSCOL	:BLACK.
	>249			:

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>251 *  MANAGE DIGGING TIMERS-->
>252 *****
>253 EVO
2627: A5 DA >254 LDA  MODE
2629: C9 10 >255 CMP  #PLAY
262B: D0 3F >256 BNE  EVO99
>257 ;
262D: A5 84 >258 LDA  FRAMEL
262F: 29 7F >259 AND  #$7F
2631: D0 39 >260 BNE  EVO99 ;CHK EV 2 SEC.
>261 ;
>262 EVOCHK
2633: A2 01 >263 LDX  #1
>264 EVO2
2635: B5 BE >265 LDA  DIGBAND,X
2637: 30 30 >266 BMI  EVO88 ;J NOT ON
2639: B5 CA >267 LDA  DIGTIM,X
263B: 10 1B >268 BPL  EVO7 ;J NOT DIGGING YET.
>269 ;
263D: 29 0F >270 AND  #$0F
263F: D0 26 >271 BNE  DTIM9 ;J NOT TIME TO TURN BACK TO BADGUY
.
>272 ;
>273 *  TURN DIGGER BACK TO BADGUY-->
>274 *****
2641: A9 00 >275 LDA  #0
2643: 95 C4 >276 STA  DIGDAT,X ;CHG IMG
2645: B4 C8 >277 LDY  DIGSPD,X
2647: B9 6D 2F >278 LDA  DTIME,Y
264A: 95 CA >279 STA  DIGTIM,X ;SET TIME TO DIG NEXT.
>280 EVO5
264C: 8A >281 TXA
264D: D0 1B >282 BNE  DTIM9 ;J N DIG1.
>283 ;CLR ALF OUT FLAG-->
264F: A9 FD >284 LDA  #$FF-2
2651: 25 8E >285 AND  ANIM8
2653: 85 8E >286 STA  ANIM8
2655: 4C 67 26 >287 JMP  DTIM9
>288 EVO7
2658: D0 0D >289 BNE  DTIM9 ;J NOT TIME TO DIG.
>290 *  TURN BADGUY TO DIGGER-->
>291 *****
265A: A9 02 >292 LDA  #2
265C: 95 C4 >293 STA  DIGDAT,X ;CHG IMG.
265E: B4 C8 >294 LDY  DIGSPD,X
>295 ;GET HOW LONG TO DIG-->
2660: B9 81 2F >296 LDA  DDUR,Y
2663: 95 CA >297 STA  DIGTIM,X
2665: D0 E5 >298 BNE  EVO5 ;J ALWAYS.
>299 DTIM9
2667: D6 CA >300 DEC  DIGTIM,X
>301 EVO88
2669: CA >302 DEX
266A: 10 C9 >303 BPL  EVO2 ;DO BOTH.
>304 ;
>305 EVO99
266C: A5 DA >306 LDA  MODE
266E: C9 10 >307 CMP  #PLAY
2670: D0 42 >308 BNE  NOCHER
>309 ;
2672: A5 84 >310 LDA  FRAMEL
2674: 29 01 >311 AND  #1
2676: AA >312 TAX
2677: B5 CA >313 LDA  DIGTIM,X
2679: 10 09 >314 BPL  NOTDIG

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```

>316 * DO DIGGER VS. CHERRY HIT->
>317 *****
267B: B5 BE >318 LDA DIGBAND,X
267D: 30 05 >319 BMI NOTDIG ;J OFF.
267F: B4 C1 >320 LDY DIGPOF,X
2681: 20 7F 2A >321 JSR CHIT
>322 NOTDIG
>323 * DO MR.DO VS CHERRY HIT->
>324 *****
2684: A5 BD >325 LDA DOBAND
2686: 30 2C >326 BMI NOCHER ;J DO OFF
2688: A4 C0 >327 LDY DOPOF
268A: 20 7F 2A >328 JSR CHIT ;MR DO V. CHERRIES.
269D: 90 25 >329 BCC NOCHER ;J NO HIT CHERRY.
>330 ;
>331 * MAKE CHERRY SOUND + ADD PTS->
>332 *****
268F: A5 8C >333 LDA CHERRYT
>334 ;GET WHICH CHERRY WAS ATE->
2691: 4A >335 LSR
2692: 4A >336 LSR
2693: 4A >337 LSR
2694: 4A >338 LSR
2695: 4A >339 LSR
2696: AA >340 TAX
>341 ;
2697: BD 1D 2B >342 LDA CHRPTS,X
269A: 20 23 2B >343 JSR ADDPTS
>344 ;
269D: BD 17 2B >345 LDA CNOTE,X
26A0: 20 3D 2D >346 JSR SOUND ;PLAY CHERRY SOUND.
>347 ;X DESTROYED.
>348 ;UP CHERRY PTR->
26A3: A5 8C >349 LDA CHERRYT
26A5: 29 E0 >350 AND #$E0
26A7: 18 >351 CLC
26A8: 69 20 >352 ADC #$20
26AA: C9 C0 >353 CMP #$C0 ;ATE 6 ALREADY?
26AC: D0 02 >354 BNE CTIME ;J N.
26AE: A9 00 >355 LDA #0
>356 CTIME
26B0: 09 1C >357 ORA #$1C ;SET TIMER.
26B2: 85 8C >358 STA CHERRYT
>359 NOCHER

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```

53 *****
54 * JOYSTICK & SWITCH READING *
55 *****
56 PUT MR.DO.JOYSTICK
>1 */ MR.DO.JOYSTICK LASTED:9/12/83
>2 *****
>3 * JOYSTICK READ RTN -> *
>4 *****
26B4: A5 89 >5 LDA BDUR
26B6: 30 03 >6 BMI JOYRD ;JP NO MUSIC ON.
>7 NJOY
26B8: 4C 65 27 >8 JMP BUTTON ;SKIP JOY & BUTTON.
>9 JOYRD
26BB: A5 DA >10 LDA MODE
26BD: C9 10 >11 CMP #FLAY
26BF: D0 F7 >12 BNE NJOY
>13 ;
26C1: A5 BD >14 LDA DOBAND
26C3: 30 F3 >15 BMI NJOY
26C5: A5 84 >16 LDA FRAMEL
26C7: 29 01 >17 AND #1
26C9: D0 ED >18 BNE NJOY ;ONLY READ EVERY OTHER FRAME.
26CB: A9 80 >19 LDA #$80
26CD: 25 8E >20 AND ANIM8
26CF: D0 E7 >21 BNE NJOY ;JP IF DO BEING DRAGGED DOWN.
>22 ;
26D1: A9 01 >23 LDA #1
26D3: 85 F5 >24 STA TEMP7 ;INIT TRIES.
>25 ;
26D5: AD 80 02 >26 LDA JOYDAT ;GET JOY
26D8: 49 FF >27 EOR #$FF
26DA: 85 F7 >28 STA TEMP9
26DC: A9 10 >29 LDA #JOYAUP
26DE: 25 F7 >30 AND TEMP9
26E0: F0 03 >31 BEQ JOY1 ;JP NOT UP.
26E2: 4C 3C 27 >32 JMP UP
>33 JOY1
26E5: A9 20 >34 LDA #JOYADN
26E7: 25 F7 >35 AND TEMP9
26E9: D0 42 >36 BNE DOWN
26EB: A9 80 >37 LDA #JOYART
26ED: 25 F7 >38 AND TEMP9
26EF: D0 2D >39 BNE RIGHT
26F1: A9 40 >40 LDA #JOYALT
26F3: 25 F7 >41 AND TEMP9
26F5: D0 18 >42 BNE LEFT
>43 ;
>44 * THERE'S NO JOY, BUT KEEP MR DO
>45 * MOVING UNTIL AT A CHAR CELL.
>46 *****
26F7: A5 BD >47 LDA DOBAND
26F9: 29 0F >48 AND #$0F
26FB: F0 03 >49 BEQ CHKHRZ ;JP IF BETWEEN 2 BANDS.
26FD: 4C 49 27 >50 ILL1 JMP ILLEG
>51 CHKHRZ
2700: A5 C0 >52 LDA DDOF
2702: 29 07 >53 AND #7
2704: D0 F7 >54 BNE ILL1 ;JP NOT IN A CHAR CELL.
>55 ;STOP ANIMATION.
2706: A9 FE >56 LDA #$FE
2708: 25 8E >57 AND ANIM8
270A: 85 8E >58 STA ANIM8
270C: 4C 65 27 >59 JMP JOY99
>60 ;
>61 * TRY TO MOVE MR DO LEFT-> *

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*****
>62
270F: A2 00 >63
2711: 20 A6 2C >64
2714: A9 03 >65
2716: 90 4B >66
2718: C5 B8 >67
271A: F0 49 >68
271C: D0 2B >69
>70
>71
>72
>73
>74
271E: A2 00 >75
2720: 20 3D 2C >76
2723: A9 02 >77
2725: 90 3C >78
2727: C5 B8 >79
2729: F0 3A >80
>81
272B: D0 1C >82
>83
>84
>85
>86
>87
272D: A2 00 >88
272F: 20 AF 2B >89
2732: A9 01 >90
2734: 90 2D >91
2736: C5 B8 >92
2738: F0 2B >93
273A: D0 0D >94
>95
>96
>97
>98
273C: A2 00 >99
273E: 20 F7 2B >100
2741: A9 00 >101
2743: 90 1E >102
2745: C5 B8 >103
2747: F0 1C >104
>105
>106
>107
>108
>109
>110
2749: C6 F5 >111
274B: 30 1B >112
274D: A5 B8 >113
274F: F0 EB >114
2751: C9 01 >115
2753: F0 DB >116
>117
2755: A5 C0 >118
2757: 29 07 >119
2759: F0 0A >120
>121
275B: A5 B8 >122
275D: C9 02 >123
275F: F0 BD >124
2761: D0 AC >125
>126
2763: 85 B8 >127
LEFT
LDX #0
JSR MLEFT
LDA #3 ;LEFT.
BCC JOY98 ;J LEGAL MV. MADE.
CMP LASTJY
BEQ JOY99 ;J LAST JY SAME AS 1 JUST TRIED.
BNE ILLEG
;
* TRY TO MOVE MR DO RIGHT-> *
*****
RIGHT
LDX #0
JSR MRIGHT
LDA #2 ;RIGHT.
BCC JOY98 ;J LEGAL MV MADE.
CMP LASTJY
BEQ JOY99 ;J ALREADY TRIED THAT DIR.
BNE ILLEG
;
* TRY TO MOVE MR DO DOWN-> *
*****
DOWN
LDX #0
JSR MDOWN
LDA #1 ;DOWN.
BCC JOY98 ;J LEGAL MV MADE.
CMP LASTJY
BEQ JOY99
BNE ILLEG
;
* TRY TO MOVE MR. DO UP-> *
*****
UP
LDX #0
JSR MUP
LDA #0 ;UP.
BCC JOY98 ;J LEGAL MV MADE.
CMP LASTJY
BEQ JOY99
;
;
* AN ILLEGAL JOY MOVE WAS TRIED.
* TRY LAST LEGAL DIRECTION--->
*****
ILLEG
DEC TEMP7 ;DEC TRIES.
BMI JOY99 ;J ALREADY TRIED LASTJY.
LDA LASTJY
BEQ UP ;UP=0.
CMP #1
BEQ DOWN ;DOWN=1.
;
LDA DOPDF
AND #7
BEQ JOY99
;
LDA LASTJY
CMP #2
BEQ RIGHT ;RIGHT=2
BNE LEFT ;LEFT=3.
JOY98
STA LASTJY

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>130 *****
>131 BUTTON
2765: A5 84 >132 LDA FRAMEL
2767: 29 01 >133 AND #1
2769: F0 61 >134 BEQ NOBUT
>135 ;
276B: A5 3C >136 LDA ATJBA ;RD JOY BUTTON A.
276D: 30 5D >137 BMI NOBUT ;JP BUTTON NOT DOWN.
>138 ;IS GAME OVER???
276F: A5 DA >139 LDA MODE
2771: C9 50 >140 CMP #TRACK
2773: F0 04 >141 BEQ BUT4 ;J TRYING TO START GAME OVER.
2775: C9 30 >142 CMP #SELECT
2777: D0 06 >143 BNE BUT5
>144 BUT4
2779: 20 87 29 >145 JSR IGAME ;START GAME OVER.
277C: 4C CC 27 >146 JMP NOBUT
>147 ;
>148 * TRYING TO FIRE POWERBALL-->
>149 *****
>150 BUT5
277F: C9 10 >151 CMP #PLAY
2781: D0 49 >152 BNE NOBUT ;J NOT PLAY MODE.
2783: A5 89 >153 LDA BDUR
2785: 10 45 >154 BFL NOBUT ;J MUSIC ON.
2787: A5 8E >155 LDA ANIM8 ;BEING DRAGGED?
2789: 30 41 >156 BMI NOBUT ;J Y.
278B: A5 BA >157 LDA MSBAND
278D: 30 3D >158 BMI NOBUT ;J BALL IS NOT AVAIL.
278F: A5 BC >159 LDA MISDIR
2791: 10 39 >160 BFL NOBUT ;J BALL ALREADY MOVING(SHOT).
>161 ;
>162 * SHOOT PWR BALL->
>163 *****
2793: A5 C0 >164 LDA DOPOF
2795: A6 B8 >165 LDX LASTJY ;GET MR DO DIR.
2797: 18 >166 CLC
2798: 7D 21 28 >167 ADC PWR0FF,X
279B: 30 2F >168 BMI NOBUT ;IF AT EDGE,NO PWRBALL.
279D: 85 BB >169 STA MISPOF
>170 ;
279F: 8D 1D 28 >171 LDA PWRLN,X
27A2: 85 B9 >172 STA MISLN
>173 ;
>174 * SHOOT ONLY IF FLD OFF->
>175 *****
27A4: E0 00 >176 CPX #0
27A6: F0 06 >177 BEQ SAM1 ;J IF UP.
27A8: A5 BD >178 LDA DOBAND
27AA: 29 0F >179 AND #$0F
27AC: D0 05 >180 BNE BLOW1
>181 SAM1
27AE: A5 BD >182 LDA DOBAND
27B0: 4C B8 27 >183 JMP FTST
>184 BLOW1
27B3: A5 BD >185 LDA DOBAND
27B5: 38 >186 SEC
27B6: E9 10 >187 SBC #$10 ;1 LOWER.
>188 FTST
27B8: A6 C0 >189 LDX DOPOF
27BA: 20 4E 2D >190 JSR FMTEST ;FLD ON?
27BD: D0 0D >191 BNE NOBUT ;J Y.
27BF: 4A >192 LSR
27C0: 4A >193 LSR
27C1: 4A >194 LSR

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27C2: 4A 195 LSR
27C3: 95 BA >196 SAMEBD
27C5: A6 B8 >197 STA MSEAND
27C7: BD 25 28 >198 LDX LASTJY
27CA: 85 BC >199 LDA FWRDIR, X
>200 STA MISDIR
>201 NOBUT

```

>203 *****
>204 * RESET. SELECT & COLOR *
>205 * SWITCH READING---> *
>206 *****
>207 SWIT
2700: AD 82 02 >208 LDA SWITCH ;RD SWITCHES.
270F: 49 FF >209 EOR #$FF
27D1: 29 01 >210 AND #SWIRES ;RESET?
27D3: F0 03 >211 BEQ NORES ;JP NO.
27D5: 20 87 29 >212 JSR IGAME ;START GAME OVER
>213 NORES
>214 * TEST FOR GAME SELECT SWITCH-->
>215 *****
27D8: A5 84 >216 LDA FRAMEL
27DA: 29 1F >217 AND #$1F
27DC: D0 27 >218 BNE NOSEL
>219 ;
27DE: AD 82 02 >220 LDA SWITCH
27E1: 49 FF >221 EOR #$FF
27E3: 29 02 >222 AND #SWISEL ;JP SELECT NOT DOWN.
27E5: F0 1E >223 BEQ NOSEL
27E7: 85 84 >224 STA FRAMEL
27E9: 85 85 >225 STA FRAMEH
>226 ;SET SELECT MODE-->
27EB: A5 DA >227 LDA MODE
27ED: C9 30 >228 CMP #SELECT
27EF: D0 0C >229 BNE SEL2 ;DON'T UP GAME NUM 1ST TIME.
27F1: E6 80 >230 INC GAME ;UP GAME NUM.
27F3: A5 80 >231 LDA GAME
27F5: C9 04 >232 CMP #4 ;MAX GAME NUM?
27F7: D0 0C >233 BNE NOSEL ;J NO WRAP.
>234 ;
27F9: A9 00 >235 LDA #0
27FB: 85 80 >236 STA GAME ;WRAP.
>237 SEL2
27FD: A9 30 >238 LDA #SELECT
27FF: 85 DA >239 STA MODE
2801: A9 38 >240 LDA #56
2803: 85 C0 >241 STA DOPOF
>242 NOSEL
2805: A5 81 >243 LDA ROUND
2807: 29 0F >244 AND #$0F
2809: A8 >245 TAY
280A: A2 04 >246 LDX #4 ;SAME COL FOR B/W.
280C: AD 82 02 >247 LDA SWITCH
280F: 49 FF >248 EOR #$FF
2811: 29 08 >249 AND #SWICOL
2813: D0 03 >250 BNE BLKWHT
2815: BE 29 28 >251 LDX FLDCOL,Y
>252 BLKWHT
2818: 86 8F >253 STX FCOLOR
281A: 4C 39 28 >254 JMP ENDJOY

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>256 ;
>257 * STARTING FWRBALL LINENUMS->
>258 *****
>259 FWRLEN

281D: 0E 01 07
2820: 07 >260 DFB 14,1,7,7 ;U,D,R,L
>261 ;
>262 * FWRBALL STARTING POS OFFSETS FR.MRDO
>263 *****
>264 FWRDFF

2821: 03 03 07
2824: 00 >265 DFB 3,3,7,0 ;UDRL
>266 ;
>267 * FWRBALL STARTING DIRECTIONS->
>268 *****
>269 FWRDIR

2825: 02 00 00
2828: 01 >270 DFB 2,0,0,1 ;MRDO DIR=UDRL.
>271 ;PWR DIR=UR,DR,DL,DL.
>272 ;
>273 * PAL ORCHARD COLOR TABLE
>274 *****
>275 FLDCOL

2829: 32 D2 22
282C: 72 >276 DFB $32,$D2,$22,$72
282D: 04 A2 42
2830: 82 >277 DFB $04,$A2,$42,$82
2831: 92 52 B4
2834: 62 >278 DFB $92,$52,$B4,$62
2835: 22 82 52
2838: C4 >279 DFB $22,$82,$52,$C4
>280 ;
>281 ENDJOY
>282 ;

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58 *****
59 * POWERBALL CONTROL CODE *
60 *****
61 PUT MR.DO.PWRBALL
>1 */MR.DO.PWRBALL LASTED: 6/2/83
>2 *****
>3 * POWERBALL MONITOR--> *
>4 *****
2839: A5 DA >5 LDA MODE
283B: C9 10 >6 CMP #PLAY
283D: D0 0A >7 BNE NOPWR ;J NOT PLAY MODE.
283F: A5 BA >8 LDA MSBAND
2841: 10 12 >9 BFL PWR2 ;J BALL IS ON OR AVAIL
>10 *****
>11 * BALL IS NOT ON YET--> *
>12 *****
2843: A5 84 >13 LDA FRAMEL
2845: 29 1F >14 AND #$1F ;CHK EV 1/2 SEC.
2847: F0 03 >15 BEQ PWRDEC
>16 NOPWR
2849: 4C 84 29 >17 JMP PWR99 ;J NOT TIME TO DEC COUNT.
>18 PWRDEC
284C: C6 BC >19 DEC MISDIR ;DEC TIMER.
284E: 10 F9 >20 BFL NOPWR ;J TIME NOT UP.
>21 *****
>22 * MAKE BALL AVAILABLE-->
>23 *****
>24 AVAIL
2850: A9 14 >25 LDA #BELLS ;BALL AVAIL SND.
2852: 20 37 2D >26 JSR LOSND ;LO PRIORITY SND.
>27 PWR2
2855: A5 BC >28 LDA MISDIR
2857: 10 31 >29 BFL PWR0 ;J BALL MOVING.
>30 *****
>31 * KEEP BALL IN MR DO'S HAND-->
>32 *****
>33 ;SET UP VERT POS-->
2859: A5 BD >34 LDA DOBAND
285B: 29 0F >35 AND #$0F
285D: AA >36 TAX ;LN.
285E: BD 6F 29 >37 LDA PWLN,X
2861: B5 B9 >38 STA MISLN
2863: A5 BD >39 LDA DOBAND
2865: 4A >40 LSR
2866: 4A >41 LSR
2867: 4A >42 LSR
2868: 4A >43 LSR
2869: A8 >44 TAY ;Y=MR DO BAND.
286A: E0 0A >45 CPX #10 ;MRDO LN>10?
286C: 90 01 >46 BCC SAME ;J Y.
286E: 88 >47 DEY ;MAKE MS BAND 1 LESS THAN MR.DO.
>48 SAME
286F: 84 BA >49 STY MSBAND
>50 ;
>51 *****
>52 * MAKE HORIZ POF= MR DO'S HAND *
>53 *****
2871: A5 C0 >54 LDA DOPOF
2873: A6 B8 >55 LDX LASTJY
2875: 18 >56 CLC
2876: 7D 6B 29 >57 ADC PWPOF,X
2879: 10 0A >58 BFL FP3
287B: C9 80 >59 CMP #128
287D: D0 04 >60 BNE FP2 ;J NOT LEFT EDGE.
287F: A9 7F >61 LDA #127
2881: D0 02 >62 BNE FP3

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2881:--D0 02 --->62-
2883: A9 00 >63
2885: 85 BB >64
2887: 4C 84 29 >65
>66
>67
>68

FP2
FP3

BNE FP3
LDA #0
STA MISPOF
JMP PWR99

RT EDGE.
;DON'T LET OFF LEFT SIDE.
;

```

>70 * BALL IS ON-DO HIT V.MR DO&DIGS
>71 *****
>72 PWR0
288A: A2 00 >73 LDX #0 ;DO IDX.
288C: A5 84 >74 LDA FRAMEL
288E: 29 01 >75 AND #1
2890: D0 0F >76 BNE PWR3 ;J NOT TIME TO TEST MR DO.
2892: 20 A9 2F >77 JSR PWRHIT
2895: B0 03 >78 BCS CATCH ;J DO CAUGHT BALL.
2897: 4C DA 28 >79 JMP PWRMOV
>80 ;
>81 * MR DO CAUGHT BALL->
>82 *****
>83 CATCH
289A: A9 81 >84 LDA #$81
289C: 85 BC >85 STA MISDIR ;BALL AVAIL NOW.
289E: 4C 55 28 >86 JMP PWR2
>87 ;
>88 * POWERBALL VS DIGS TEST-->
>89 *****
>90 PWR3
28A1: A2 02 >91 LDX #2
>92 PWR55
28A3: 20 A9 2F >93 JSR PWRHIT
28A6: B0 06 >94 BCS PWR66 ;J HIT.
28A8: CA >95 DEX
28A9: D0 F8 >96 BNE PWR55 ;TEST OTHER DIG.
28AB: 4C DA 28 >97 JMP PWRMOV ;J NO HIT.
>98 ;
>99 * ONE OF THE DIGGERS IS HIT->
>100 *****
>101 PWR66
28AE: 8A >102 TXA
28AF: 48 >103 PHA ;SV X.
28B0: A9 00 >104 LDA #DEADSND
28B2: 20 41 2D >105 JSR HISND ;MAKE DYING SOUND.
28B5: 68 >106 PLA
28B6: AA >107 TAX ;RSTR X.
>108 ;KILL THAT DIGGER >
28B7: A9 80 >109 LDA #$80
28B9: 95 BD >110 STA DOBAND,X
28BB: E0 01 >111 CPX #1
28BD: D0 03 >112 BNE PWR84 ;J NOT DIG1.
>113 ;
>114 *****
>115 *REVERSE VIDEO LETTER IF ALF MSTR
>116 *****
28BF: 20 82 2B >117 JSR REVVID
>118 ;
>119 *****
>120 * SET TIME B4 PWRBALL AVAIL NEXT
>121 *****
>122 PWR84
28C2: A9 50 >123 LDA #$50
28C4: 20 23 2B >124 JSR ADDPTS
>125 ;
28C7: A4 D8 >126 LDY FWRTIM
28C9: B9 7F 29 >127 LDA PTIME,Y
28CC: 85 BC >128 STA MISDIR
28CE: C8 >129 INY
28CF: C0 05 >130 CPY #5
28D1: D0 02 >131 BNE PWR86
28D3: A0 00 >132 LDY #0
>133 PWR86
28D5: 84 D8 >134 STY FWRTIM

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28D7: 4C 84 29 2136

JMP PWR99

```

>138 *****
>139 * MOVE BALL HORIZONTALLY-->
>140 *****
>141 PWRMOV
28DA: A5 BC >142 LDA MISDIR
28DC: 29 01 >143 AND #1 ;GET HORIZ DIR.
28DE: 08 >144 PHP
28DF: A9 01 >145 LDA #1
28E1: 28 >146 PLP
28E2: F0 02 >147 BEQ FRIGHT
28E4: A9 FF >148 LDA #$FF ;LEFT
>149 FRIGHT
28E6: 18 >150 CLC
28E7: 65 88 >151 ADC MISPOF
28E9: C9 80 >152 CMP #128
28EB: F0 14 >153 BEQ HCHG
28ED: C9 FF >154 CMP #$FF
28EF: F0 10 >155 BEQ HCHG
28F1: 85 88 >156 STA MISPOF
28F3: A5 BA >157 LDA MSBAND
28F5: 0A >158 ASL
28F6: 0A >159 ASL
28F7: 0A >160 ASL
28F8: 0A >161 ASL
28F9: AA >162 TAX
28FA: A6 88 >163 LDX MISPOF
28FC: 20 4E 2D >164 JSR FMTEST
28FF: F0 0E >165 BEQ VCHK ;JP FLD OFF.
>166 HCHG
2901: A9 01 >167 LDA #1
2903: 45 BC >168 EOR MISDIR
2905: 85 BC >169 STA MISDIR ;CHG HOR DIR.
2907: A9 08 >170 LDA #BEEP
2909: 20 3D 2D >171 JSR SOUND ;LO PRIORITY SND.
>172 ;X DESTROYED.
>173 HOR99
290C: 4C 84 29 >174 JMP FWR99

```



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>176 *****
>177 * MOVE POWERBALL VERTICALLY--> *
>178 *****
>179 VCHK
290F: A5 B0 >180 LDA MISDIR
2911: 29 02 >181 AND #2
2913: F0 37 >182 BEQ FDOWN
>183 *****
>184 * MOVE POWERBALL UP-->
>185 *****
2915: A6 B9 >186 LDX MISLN
2917: E0 0E >187 CPX #14
2919: F0 05 >188 BEQ FUR4 ;J TO CHANGE BANDS.
291B: E6 B9 >189 INC MISLN
291D: 4C 84 29 >190 JMP FWR99
>191 FUR4
2920: A6 BA >192 LDX MSBAND
2922: E0 07 >193 CPX #7
2924: F0 18 >194 BEQ VCHG ;J AT TOP OF SCREEN.
2926: E6 BA >195 INC MSBAND
2928: A5 BA >196 LDA MSBAND
292A: 0A >197 ASL
292B: 0A >198 ASL
292C: 0A >199 ASL
292D: 0A >200 ASL
292E: A6 BB >201 LDX MISPOF
2930: 20 4E 2D >202 JSR FMTEST
2933: D0 07 >203 BNE VCHG1 ;J FLD OFF.
2935: A9 01 >204 LDA #1
2937: 85 B9 >205 STA MISLN
2939: 4C 84 29 >206 JMP FWR99
>207 VCHG1
293C: C6 BA >208 DEC MSBAND
>209 VCHG
293E: A9 02 >210 LDA #2
2940: 45 BC >211 EOR MISDIR
2942: 85 BC >212 STA MISDIR
>213 ;
2944: A9 0E >214 LDA #BOOF
2946: 20 3D 2D >215 JSR SOUND ;LO PRIORITY SND.
>216 ;X DESTROYED.
>217 VERT99
2949: 4C 84 29 >218 JMP FWR99
>219 *****
>220 * MOVE POWERBALL DOWN-->
>221 *****
>222 FDOWN
294C: C6 B9 >223 DEC MISLN
294E: D0 34 >224 BNE FWR99 ;J DON'T HAVE TO CHG BANDS.
2950: A5 BA >225 LDA MSBAND
2952: F0 EA >226 BEQ VCHG ;J AT BOTTOM.
2954: 38 >227 SEC
2955: E9 01 >228 SBC #1
2957: 0A >229 ASL
2958: 0A >230 ASL
2959: 0A >231 ASL
295A: 0A >232 ASL
295B: A6 BB >233 LDX MISPOF
295D: 20 4E 2D >234 JSR FMTEST
2960: D0 DC >235 BNE VCHG ;J FLD ON.
2962: C6 BA >236 DEC MSBAND
2964: A9 0E >237 LDA #14
2966: 85 B9 >238 STA MISLN
2968: 4C 84 29 >239 JMP FWR99
>240 ;

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>242 * POWERBALL TABLES-
>243 *****
>244 PWPOF

296B: 08 08 08
296E: FF >245 DFB 8,8,8,$FF ;UDRL
>246 ;
>247 FWLN

296F: 08 08 07
2972: 06 05 04
2975: 03 02 >248 DFB 8,8,7,6,5,4,3,2
2977: 01 01 0E
297A: 0E 0D 0D
297D: 0C 0B >249 DFB 1,1,14,14,13,13,12,11
>250 ;
>251 * TIME (IN 1/2 SECS) BEFORE BALL AVAIL
>252 *****
>253 PTIME

297F: 02 08 0C
2982: 10 14 >254 DFB 2,8,12,16,20
>255 ;
>256 PWR99
62 ;
63 *****
64 * BANK SWITCH FOR REST OF TOPVI*
65 *****
2984: 4C 00 20 66 JMP TOPSW

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68 *****
69 * BANK1 SUBROUTINES *
70 *****
71 PUT MR.DO.SUBS1
>1 */ MR.DO.SUBS1 LASTED: 8/3/83.
>2 *****
>3 * SUBROUTINES *
>4 * FOR 1ST BANK OF MR.DO! *
>5 *****
>6 IGAME
2987: A9 00 >7 LDA #0
2989: 85 84 >8 STA FRAMEL
298B: 85 85 >9 STA FRAMEH
298D: 85 81 >10 STA ROUND ;RND NUM=0.
298F: 85 82 >11 STA SCORLO
2991: 85 83 >12 STA SCORHI ;INIT SCORE.
2993: 85 8B >13 STA ALPHA ;CLR OUT ALPHA MONSTER REV VIDEO.
>14 ;INIT IDXS TO SPOTEL->
2995: A5 80 >15 LDA GAME
2997: 0A >16 ASL ;X 2.
2998: AA >17 TAX
2999: 86 C8 >18 STX DIGSPD
299B: E8 >19 INX
299C: 86 C9 >20 STX DIGSPD+1
>21 ;
299E: A9 00 >22 LDA #SONG1
29A0: 20 2C 2D >23 JSR SONG ;HI PRIORITY SONG.
>24 ;
29A3: A9 04 >25 LDA #4 ;4 MR DO'S.
29A5: 85 DB >26 STA DOINV ;INIT MRDO INVENTORY.
>27 * INIT RAM FOR NEW ROUND -->
>28 IROUND
>29 ;
29A7: A9 06 >30 LDA #6 ;GET NUM BADGUYS THIS RND.
29A9: 85 8A >31 STA DIGINV
>32 ;
29AB: A4 C8 >33 LDY DIGSPD
29AD: B9 6D 2F >34 LDA IQTBL,Y
29B0: 85 CC >35 STA DIGIO
29B2: A4 C9 >36 LDY DIGSPD+1
29B4: B9 6D 2F >37 LDA IQTBL,Y
29B7: 85 CD >38 STA DIGIO+1 ;SET NUM CHAR CELLS TO GO B4 CHANG
E DIR.
29B9: A5 81 >39 LDA ROUND
29BB: 29 07 >40 AND #7
29BD: AA >41 TAX ;ONLY IDX UP TO 7 FOR REST->
>42 ;
29BE: BD 27 2F >43 LDA CCTLAD,X ;CHERRY CONTROL ADDR LO.
29C1: 85 EF >44 STA TEMP1
29C3: A9 2F >45 LDA #>CCTL1 ;CHERRY CONTROL ADDR HI.
29C5: 85 F0 >46 STA TEMP2
>47 ;SET UP HI ADDRS-->
29C7: A9 2E >48 LDA #>FR1L1 ;FIELD REG DATA ADDR HI.
29C9: 85 F2 >49 STA TEMP4
29CB: 85 F4 >50 STA TEMP6
29CD: 85 F6 >51 STA TEMP8
29CF: 85 F8 >52 STA TEMP10
>53 ;SET UP LO ADDRS==>
29D1: BD A0 2E >54 LDA F1LADR,X ;FR1 LEFT LO ADDR.
29D4: 85 F1 >55 STA TEMP3
29D6: BD A8 2E >56 LDA F2LADR,X ;FR2 LEFT LO ADDR.
29D9: 85 F3 >57 STA TEMP5
29DB: BD B0 2E >58 LDA F2RADR,X ;FR2 RIGHT ADDR LO.
29DE: 85 F5 >59 STA TEMP7
29E0: BD B8 2E >60 LDA F1RADR,X ;FR1 RIGHT ADDR LO.
29E3: 85 F7 >61 STA TEMP9 ;FR1 RIGHT

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29E5:	A0 07	>62	LDY	#7	;8 BANDS
		>63			
29E7:	B1 EF	>64	IRND		
29E9:	99 90 00	>65	LDA	(TEMP1),Y	
29EC:	B1 F1	>66	STA	CHERRYC,Y	;CHERRY RAM.
29EE:	99 98 00	>67	LDA	(TEMP3),Y	
29F1:	B1 F3	>68	STA	FR1L,Y	;FR1 LEFT RAM MAP.
29F3:	99 A0 00	>69	LDA	(TEMP5),Y	
29F6:	B1 F5	>70	STA	FR2L,Y	;FR2 LEFT RAM MAP.
29F8:	99 A8 00	>71	LDA	(TEMP7),Y	
29FB:	B1 F7	>72	STA	FR2R,Y	;FR2 RIGHT RAM MAP.
29FD:	99 B0 00	>73	LDA	(TEMP9),Y	
2A00:	88	>74	STA	FR1R,Y	;FR1 RIGHT RAM MAP.
2A01:	10 E4	>75	DEY		
		>76	BPL	IRND	;LOOP TIL 8 BANDS OF RAM DONE.
		>77			
		>78			
		>79			
2A03:	A9 02	>80	* SET UP APPLE RAM BY ROUND NUM->		
2A05:	BC 00 2E	>81	* RANDOMLY SEL MAIN POS OR ALT->		
2A08:	25 D9	>82	*****		
2A0A:	F0 03	>83	LDA	#2	;INIT RANDOM MASK.
2A0C:	BC 08 2E	>84	LDY	AP1POF,Y	
		>85	AND	RANDOM	
2A0F:	84 D4	>86	BEQ	APPLE1	
2A11:	0A	>87	LDY	AP1POS,X	
2A12:	BC D0 2E	>88	STY	APPOF	
2A15:	25 D9	>89	ASL		
2A17:	F0 03	>90	LDY	AP2POF,X	
2A19:	BC D8 2E	>91	AND	RANDOM	
		>92	BEQ	APPLE2	
2A1C:	84 D5	>93	LDY	AP2POS,X	
2A1E:	0A	>94	STY	APPOF+1	
2A1F:	BC E0 2E	>95	ASL		
2A22:	25 D9	>96	LDY	AP3POF,X	
2A24:	F0 03	>97	AND	RANDOM	
2A26:	BC E8 2E	>98	BEQ	APPLE3	
		>99	LDY	AP3POS,X	
2A29:	84 D6	>100	STY	APPOF+2	
2A2B:	0A	>101	ASL		
2A2C:	BC F0 2E	>102	LDY	AP4POF,X	
2A2F:	25 D9	>103	AND	RANDOM	
2A31:	F0 03	>104	BEQ	APPLE4	
2A33:	BC F8 2E	>105	LDY	AP4POS,X	
		>106	STY	APPOF+3	
2A36:	84 D7	>107			
		>108			
2A38:	A9 70	>109	LDA	#\$70	;TOP AP.
2A3A:	85 D0	>110	STA	APBAND	
2A3C:	A9 50	>111	LDA	#\$50	
2A3E:	85 D1	>112	STA	APBAND+1	
2A40:	A9 30	>113	LDA	#\$30	
2A42:	85 D2	>114	STA	APBAND+2	
2A44:	A9 10	>115	LDA	#\$10	;BOT AP.
2A46:	85 D3	>116	STA	APBAND+3	
		>117			
2A48:	A9 80	>118	LDA	#\$80	
2A4A:	85 8D	>119	STA	APFALL	;NO APPLES FALLING.
2A4C:	85 BA	>120	STA	MSBAND	;PWR BALL IS NOT AVAIL YET.
2A4E:	A9 02	>121	LDA	#2	;SHORT DELAY
2A50:	85 BC	>122	STA	MISDIR	;SET TIME B4 AVAIL COUNT.
		>123			
		>124	* PUT MR DO BACK AT BOTTOM OF SCREEN-->		
2A52:	A9 38	>125	LDA	#\$6	
2A54:	85 84	>126	STA	FRAMEL	
2A56:	85 00	>127	STA	DOODE	

2A56:	85 C0	>127	STA	DOPDF	
2A58:	A9 00	>128	LDA	#0	
2A5A:	85 BD	>129	STA	DOBAND	
		>130			;
2A5C:	85 C4	>131	STA	DIGDAT	
2A5E:	85 C5	>132	STA	DIGDAT+1	
		>133			;
2A60:	85 D8	>134	STA	PWRTIM	;BALL AVAIL IDX.
2A62:	85 8E	>135	STA	ANIM8	;ACTIVATE CH SELECT.
2A64:	A9 80	>136	LDA	##80	
2A66:	85 BE	>137	STA	DIGBAND	;BOTH DIGS
2A68:	85 BF	>138	STA	DIGBAND+1	;OFF.
		>139			;
2A6A:	A9 10	>140	LDA	#PLAY	
2A6C:	85 DA	>141	STA	MODE	;SET PLAY MODE.
		>142			;UF DIG SPD IDXS-
2A6E:	A2 01	>143	LDX	#1	
		>144			DSPD
2A70:	B4 C8	>145	LDY	DIGSPD,X	
2A72:	C8	>146	INY		
2A73:	C0 14	>147	CPY	#20	
2A75:	D0 02	>148	BNE	DSPD2	
2A77:	A0 08	>149	LDY	#8	;WRAP TO SPD 8.
		>150			DSPD2
2A79:	94 C8	>151	STY	DIGSPD,X	
2A7B:	CA	>152	DEX		
2A7C:	10 F2	>153	BPL	DSPD	
		>154			;
2A7E:	60	>155	RTS		


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>157 *****
>158 * CHERRY VS. DO/DIGGER HITDET *
>159 *PARAMS PASSED: *
>160 * B7-B4 ACC = BAND NUM OF OBJ *
>161 * B3-B0      = LN OFFSET OF OBJ *
>162 *          Y  = POF IDX OF OBJ *
>163 *TEMP RAM USED: *
>164 * TEMP1= OBJ POF IDX/8. *
>165 * TEMP2= NUM COPIES OF CHERRY *
>166 * TEMP3= CHERRY SPACING/8. *
>167 * TEMP4= CPOF TBL IDX *
>168 * TEMP5= CHERRY CONTROL VALUE. *
>169 * TEMP6= INDIR ADR LO CCTL TBL *
>170 * TEMP7=          H1 *
>171 * TEMP8= ORIG CHERRY POS. *
>172 * TEMP9= B4-B7= OBJ BAND NUM. *
>173 *TEMP10= POF TABL IDX OF OBJ. *
>174 *****
>175 CHIT
>176 * TEST IF MD TOTALLY W/I A BAND->
2A7F: 85 F7 >177 STA TEMP9 ;SV BAND.
2A81: 84 F8 >178 STY TEMP10 ;SV POF IDX.
2A83: 29 0F >179 AND #0F
2A85: F0 03 >180 BEQ CH1
2A87: 4C 15 2B >181 JMP NOCH
>182 ;
>183 *TEST IF MD TOTALLY ON A COLUMN->
>184 *****
>185 CH1
2A8A: A5 F8 >186 LDA TEMP10 ;GET POF.
2A8C: 29 07 >187 AND #7
2A8E: F0 03 >188 BEQ CH2
2A90: 4C 15 2B >189 JMP NOCH ;JP MD NOT ON COLUMN(NO HIT DET).
>190 CH2
2A93: A5 F8 >191 LDA TEMP10 ;GET POF.
2A95: 4A >192 LSR
2A96: 4A >193 LSR
2A97: 4A >194 LSR ;DOPOF/8.
2A98: 85 EF >195 STA TEMP1 ;SV IT.
>196 ;
2A9A: A5 F7 >197 LDA TEMP9 ;GET BAND.
2A9C: 4A >198 LSR
2A9D: 4A >199 LSR
2A9E: 4A >200 LSR
2A9F: 4A >201 LSR
2AA0: 29 07 >202 AND #7
2AA2: AA >203 TAX ;GIVE X BAND NUM.
2AA3: B5 90 >204 LDA CHERRYC,X ;GET CHERRY CONTROLS.
2AA5: 30 03 >205 BMI CHERE ;JP IF THERE IS A CHERRY IN THIS B
AND.
2AA7: 4C 15 2B >206 JMP NOCH
>207 ;
>208 * TEST IF MD HIT A CHERRY-->
>209 *****
>210 CHERE
2AAA: 29 07 >211 AND #07 ;KEEP ONLY REP/SPACING.
2AAC: 85 F3 >212 STA TEMP5 ;SV CHERRY CONTROL.
2AAE: 0A >213 ASL
2AAF: A8 >214 TAY ;CONTROL*2.
2AB0: B9 00 2F >215 LDA REPSA,Y
2AB3: 85 F0 >216 STA TEMP2 ;SV COPIES.
2AB5: B9 01 2F >217 LDA REPSA+1,Y
2AB8: 85 F1 >218 STA TEMP3 ;SV SPACING/8.
2ABA: B5 90 >219 LDA CHERRYC,X
2ABC: 4A >220 LSR

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2ABD: 4A	>221	LSR		
2ABE: 4A	>222	LSR		
2ABF: 29 0F	>223	AND	#\$0F	
2AC1: 85 F2	>224	STA	TEMP4	;SV CPOF TBL IDX.
2AC3: 85 F6	>225	STA	TEMP8	;SV ANOTHER COPY.
2AC5: A2 00	>226	LDX	#0	;INIT TRIES COUNT.
	>227			
2AC7: A5 EF	>228	LDA	TEMP1	;GET DOPOF/8.
2AC9: C5 F2	>229	CMP	TEMP4	;DOPOF=CPOF?
2ACB: F0 0E	>230	BEG	CH50	;JP YES,HIT.
2ACD: C6 F0	>231	DEC	TEMP2	;DEC COPIES.
2ACF: F0 44	>232	BEG	NOCH	;JP IF TRIED ALL COPIES.
	>233			
	>234			
	>235			
	>236			
2AD1: 18	>236	CLC		
2AD2: A5 F2	>237	LDA	TEMP4	;ADD SPACING TO CPOF.
2AD4: 65 F1	>238	ADC	TEMP3	
2AD6: 85 F2	>239	STA	TEMP4	
2AD8: E8	>240	INX		;UP TRIES COUNT.
2AD9: D0 EC	>241	BNE	CH25	;JP ALWAYS,TRY AGAIN.
	>242			
	>243			
	>244			
	>245			
2ADB: A4 F3	>245	LDY	TEMP5	;GET CCTL(0-6).
2ADD: B9 0E 2F	>246	LDA	HITBL,Y	
2AE0: 85 F4	>247	STA	TEMP6	;INDIR LO.
2AE2: A9 2F	>248	LDA	#\$V1C	
2AE4: 95 F5	>249	STA	TEMP7	;INDIR HI.
2AE6: 8A	>250	TXA		
2AE7: 0A	>251	ASL		;TRIES*2.
2AE8: A8	>252	TAY		
2AE9: B1 F4	>253	LDA	(TEMP6),Y	
2AEB: 85 F3	>254	STA	TEMP5	;NEW CTL+SIGN.
2AED: C8	>255	INY		
2AEE: B1 F4	>256	LDA	(TEMP6),Y	;GET NUM TIMES TO ADD SPACING TO C
PDF IDX.				
2AF0: AA	>257	TAX		
	>258			
	>259			
	>260			
	>261			
2AF1: CA	>261	DEX		
2AF2: 30 09	>262	EMI	CH80	;JP WHEN NEW POS DONE.
2AF4: 18	>263	CLC		
2AF5: A5 F1	>264	LDA	TEMP3	;SPACING/8.
2AF7: 65 F6	>265	ADC	TEMP8	;ADD TO ORIG POS IDX.
2AF9: 85 F6	>266	STA	TEMP8	
2AFB: D0 F4	>267	BNE	CH75	;JP ALWAYS.
	>268			
	>269			
2AFD: A5 F6	>269	LDA	TEMP8	;GET NEW CPOF IDX.
2AFF: 0A	>270	ASL		
2B00: 0A	>271	ASL		
2B01: 0A	>272	ASL		
2B02: 05 F3	>273	ORA	TEMP5	;OR CPOF IDX TO CTL.
2B04: 85 F3	>274	STA	TEMP5	
2B06: A5 F7	>275	LDA	TEMP9	;GET BAND.
2B08: 4A	>276	LSR		
2B09: 4A	>277	LSR		
2B0A: 4A	>278	LSR		
2B0B: 4A	>279	LSR		
2B0C: 29 07	>280	AND	#7	
2B0E: AA	>281	TAX		;GIVE X BAND NUM.
2B0F: A5 F3	>282	LDA	TEMP5	
2B11: 95 90	>283	STA	CHERRYC,X	;NEW CHERRY CTL+POF.
2B13: 38	>284	SEC		;FLAG A HIT.
2B14: 60	>285	RTS		

2B15: 18	>286	NOCH	CLC	:FLAG NO HIT.
2B16: 60	>287		RTS	
	>288			
	>289	CNOTE		
2B17: 1C	>290		DFB	#CHER1
2B18: 29	>291		DFB	#CHER2
2B19: 36	>292		DFB	#CHER3
2B1A: 43	>293		DFB	#CHER4
2B1B: 50	>294		DFB	#CHER5
2B1C: 5D	>295		DFB	#CHER6
	>296	CHRPTS		
2B1D: 05 05 05				
2B20: 05 05 55	>297		DFB	5,5,5,5,5,\$55

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>299 *****
>300 * ADDPTS-ADD ACC. TO SCORE *
>301 *****
>302 ADDPTS
2B23: 86 F0 >303 STX TEMP2
2B25: A6 83 >304 LDX SCORHI
2B27: 86 EF >305 STX TEMP1
>306 ;ADD THE PTS IN->
2B29: F8 >307 SED
2B2A: 18 >308 CLC
2B2B: 65 82 >309 ADC SCORLO
2B2D: 85 82 >310 STA SCORLO
2B2F: A9 00 >311 LDA #0
2B31: 65 83 >312 ADC SCORHI
2B33: 85 83 >313 STA SCORHI
2B35: D8 >314 CLD
>315 ;DID 1K CHANGE?
2B36: C5 EF >316 CMP TEMP1
2B38: F0 45 >317 BEQ NOCHG ;J N.
>318 ;LET ONLY EVERY 2K PTS->
2B3A: 29 01 >319 AND #1
2B3C: D0 41 >320 BNE NOCHG
>321 ;
>322 ;
>323 * 1K DIGIT CHANGED-->
>324 *****
>325 ;
>326 *IS AN ALPHA MONSTER ALREADY OUT?
>327 *****
2B3E: A9 02 >328 LDA #2
2B40: 25 8E >329 AND ANIM8
2B42: D0 3B >330 BNE NOCHG ;J Y,ALF IS OUT ALREADY.
>331 ;
>332 ;
>333 *IS CH SELECT @ A REV VIDEO CHAR?
>334 *****
2B44: A5 8B >335 LDA ALPHA
2B46: 29 07 >336 AND #7
2B48: AA >337 TAX
2B49: A9 08 >338 LDA #6 ;LET E.
>339 ADD44
2B4B: CA >340 DEX
2B4C: 30 04 >341 BMI ADD55
2B4E: 0A >342 ASL ;PREPARE MASK.
2B4F: 4C 4B 2B >343 JMP ADD44
>344 ADD55
2B52: 25 8B >345 AND ALPHA
2B54: D0 29 >346 BNE NOCHG ;J LET IS REV VIDEO.
>347 * CHANGE DIGGER TO ALPHA MONSTER
>348 *****
2B56: A6 C8 >349 LDX DIGSPD
2B58: BD 6D 2F >350 LDA DTIME,X ;TIME B4 XFORM TO DIG.
2B5B: 95 CA >351 STA DIGTIM ;DON'T LET HIM DIG.
>352 ;
2B5D: A5 8B >353 LDA ALPHA
2B5F: 29 07 >354 AND #7
2B61: AA >355 TAX
2B62: BD AA 2B >356 LDA MONSTR,X
2B65: 85 C4 >357 STA DIGDAT
2B67: A9 02 >358 LDA #2
2B69: 05 8E >359 ORA ANIM8
2B6B: 85 8E >360 STA ANIM8 ;SET FLAG FOR ALF MONSTER OUT.
>361 ;IS THAT DIG ON?
2B6D: A5 8E >362 LDA DIGBAND
2B6F: 10 0E >363 BPL NOCHG ;J Y.

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2B71: A9 38 >364
2B73: 85 C1 >365
2B75: A9 40 >366
2B77: 85 BE >367
2B79: A5 8A >368
2B7B: F0 02 >369
2B7D: C6 8A >370
 >371
 >372
2B7F: A6 F0 >373
2B81: 60 >374

NOCHG

LDA #56
STA DIGPOF
LDA #40
STA DIGBAND
LDA DIGINV
BEQ NOCHG
DEC DIGINV

LDX TEMP2
RTS

;PUT HIM IN CTR->

;1 LESS DIG IF ANY LEFT.

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>376 *****
>377 *MAKE REV VIDEO IF DIG WAS ALF->
>378 *****
>379 REVVID
2B82: A5 8E >380 LDA ANIM8
2B84: 29 FD >381 AND #$FF-2
2B86: 85 8E >382 STA ANIM8 ;CLR ALF OUT.
>383 ;
2B88: A5 C4 >384 LDA DIGDAT
2B8A: C9 06 >385 CMP #6
2B8C: 90 1B >386 BCC ALFRET ;J N.
>387 ;YES, REV VIDEO HIS LETTER-
2B8E: 86 F3 >388 STX TEMP5 ;SV X.
2B90: A5 8B >389 LDA ALPHA
2B92: 29 07 >390 AND #7 ;GET CH SELECT.
2B94: AA >391 TAX
2B95: A9 0B >392 LDA #8 ;LET E.
>393 ALFT5
2B97: CA >394 DEX
2B98: 30 04 >395 BMI HAVIT
2B9A: 0A >396 ASL
2B9B: 4C 97 2B >397 JMP ALFT5
>398 HAVIT
2B9E: 05 8B >399 ORA ALPHA
2BA0: 85 8B >400 STA ALPHA ;SET REV VIDEO BIT.
>401 *****
>402 * CLR ALPHA OUT FLAG--> *
>403 *****
>404 ;
2BA2: A9 00 >405 LDA #0
2BA4: 85 C4 >406 STA DIGDAT
2BA6: A6 F3 >407 LDX TEMP5 ;RSTR X.
2BA8: 38 >408 SEC ;FLAG Y.
>409 ALFRET
2BA9: 60 >410 RTS
>411 * IDX TO ALF MONSTER IMGS(DIGIMG).
>412 *****
>413 MONSTR
2BAA: 06 0B 0A
2BAD: 0C 0E >414 DFB 6,8,10,12,14

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>416 *****
>417 * PRIMITIVE OBJ MOVE RTNS-> *
>418 *****
>419 ;
>420 *MDOWN - MOVE OBJ DOWN 1 LINE.
>421 * - CHANGE BANDS IF NECESSARY.
>422 * IN: X-> DO,DIG1,DIG2 IDX
>423 * IE. 0,1,2
>424 *
>425 * OUT: C=1 = MOVE ILLEGAL BECAUSE:
>426 * ALREADY AT BOTTOM OR
>427 * OBJ NOT IN A COLUMN.
>428 * OR APPLE IN WAY.
>429 * C=0 = MOVE OK, AND
>430 * Y = NEW BAND/LN OFFSET.
>431 *****
>432 MDOWN
>433 ;TEST IF LEGAL TO MOVE->
2BAF: B5 C0 >434 LDA DOPOF,X
2BB1: 29 07 >435 AND #7
2BB3: D0 40 >436 BNE NOMOV ;JP NOT ON COLUMN.
>437 ;
2BB5: B5 BD >438 LDA DOBAND,X ;GET BAND/LN.
>439 ;BAND/LN=0?
2BB7: F0 3C >440 BEQ NOMOV ;JP IN BOTTOM BAND ALREADY.
>441 ;
>442 ;MOVE DOWN->
2BB9: 29 0F >443 AND #$0F ;LN OFFSET=15?
2BBB: F0 11 >444 BEQ MVD50 ;J IF ABOUT TO TAKE UP 2 BANDS.
2BED: C9 0F >445 CMP #$0F
2BBF: D0 09 >446 BNE MVD25 ;JP DON'T HAVE TO MOVE DOWN A BAND.
2BC1: B5 BD >447 LDA DOBAND,X
2BC3: 38 >448 SEC
2BC4: E9 1F >449 SBC #$1F ;LN=0.
2BC6: 95 BD >450 STA DOBAND,X
2BC8: 18 >451 CLC
2BC9: 60 >452 RTS
>453 ;
>454 MVD25
2BCA: F3 BD >455 INC DOBAND,X ;ADD 1 TO LN OFFSET (LN WAS < 15).
2BCC: 18 >456 CLC
2BCD: 60 >457 RTS
>458 * ONLY TEST FOR APPLE IF LN=0
>459 *****
>460 MVD50
2BCE: B5 BD >461 LDA DOBAND,X
2BD0: 38 >462 SEC
2BD1: E9 10 >463 SBC #$10 ;BAND-1.
2BD3: 85 EF >464 STA TEMP1
2BD5: 20 1C 2D >465 JSR APTTEST ;APPLE ON BAND BELOW?
2BD8: D0 17 >466 BNE MVD55 ;JP NO.
2BDA: B9 D4 00 >467 LDA APPOF,Y
2BDD: D5 C0 >468 CMP DOPOF,X ;APOS>OBJPOS?
2BDF: B0 08 >469 BCS MVD52 ;JP Y
>470 * APPLE IS TO LEFT-->
>471 *****
2BE1: 69 07 >472 ADC #7 ;APOS+7
2BE3: D5 C0 >473 CMP DOPOF,X
2BE5: B0 0E >474 BCS NOMOV ;JP AP IN WAY.
2BE7: 90 08 >475 BCC MVD55
>476 * APPLE IS TO RIGHT-->
>477 *****
>478 MVD52
2BE9: E9 07 >479 SBC #7 ;APOS-7
2BEB: 90 08 >480 BCC NOMOV ;J AP AT LEFT EDGE.

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2BED: 05 00	>481	CMP	DOPOF, X	
2BEF: 90 04	>482	BCC	NOMOV	; JP AP IN WAY.
	>483			;
	>484	MVD55		
2BF1: F6 BD	>485	INC	DOBAND, X	; OFFSET=1.
	>486	MVD56		
2BF3: 18	>487	CLC		
2BF4: 60	>488	RTS		
	>489	NOMOV		
2BF5: 38	>490	SEC		
2BF6: 60	>491	RTS		
	>492			;

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>494 *****
>495 *MUP - MOVE OBJ UP 1 LINE.
>496 *      - CHANGE BANDS IF NECESSARY.
>497 *      IN:  X-> DO,DIG1,DIG2 IDX
>498 *           IE. 0,1,2
>499 *
>500 *      OUT:  C=1 MOVE IS ILLEGAL BECAUSE:
>501 *           ALREADY AT TOP OF SCREEN, OR
>502 *           NOT IN A COLUMN.
>503 *           C=0 = MOVE OK, AND
>504 *****
>505 MUP
>506                                     ;TEST IF LEGAL-->
2BF7: B5 C0 >507 LDA DOPOF,X
2BF9: 29 07 >508 AND #7
2BFB: D0 F8 >509 BNE NOMOV ;JP NOT ON COLUMN.
>510 ;
2BFD: B5 BD >511 LDA DOBAND,X
2BFF: 29 0F >512 AND #$0F ;LN=0?
2C01: F0 04 >513 BEQ MVU50 ;JP YES,MUST MOVE UP A BAND.
>514 ;
2C03: D6 BD >515 DEC DOBAND,X
2C05: 18 >516 CLC
2C06: 60 >517 RTS
>518 MVU50
2C07: B5 BD >519 LDA DOBAND,X
2C09: C9 70 >520 CMP #$70 ;AT TOP ALREADY?
2C0B: F0 E8 >521 BEQ NOMOV ;JP YES.
>522 ;
2C0D: A9 10 >523 LDA #$10
2C0F: 18 >524 CLC
2C10: 75 BD >525 ADC DOBAND,X
2C12: 85 EF >526 STA TEMP1
2C14: 20 1C 2D >527 JSR APTEST ;APPLE ON BAND?
2C17: D0 1B >528 BNE MVU55 ;JP N.
>529 ;
2C19: B9 D4 00 >530 LDA APPOF,Y
2C1C: D5 C0 >531 CMP DOPOF,X ;APOS>=OBJPOS?
2C1E: 80 08 >532 BCS MVU52 ;JP Y.
>533 * APPLE IS TO LEFT-->
>534 *****
2C20: 69 07 >535 ADC #7
2C22: D5 C0 >536 CMP DOPOF,X ;APOS+7>OPOS?
2C24: F0 CF >537 BCS NOMOV ;JP AP IN WAY.
2C26: 90 0C >538 BCC MVU55 ;ELSE OK.
>539 * APPLE IS TO RIGHT-->
>540 *****
>541 MVU52
2C28: E9 07 >542 SBC #7
2C2A: 10 02 >543 BPL MVU53 ;J N WRAP.
2C2C: A9 00 >544 LDA #0
>545 MVU53
2C2E: D5 C0 >546 CMP DOPOF,X ;APOS-7>OPOS?
2C30: F0 C3 >547 BEQ NOMOV
2C32: 90 C1 >548 BCC NOMOV ;JP IN WAY.
>549 MVU55
2C34: B5 BD >550 LDA DOBAND,X
2C36: 18 >551 CLC
2C37: 69 1F >552 ADC #$1F ;BAND=BAND+1,LN=15.
2C39: 95 BD >553 STA DOBAND,X
2C3B: 18 >554 CLC
2C3C: 60 >555 RTS
>556 ;

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>558 *****
>559 *MRIGHT- MOVE OBJ RIGHT 1 PIXEL.
>560 *      IN: X= DO,DIG1,DIG2 IDX.
>561 *      IE. 0,1,2
>562 *
>563 *      OUT: C=1 IF MOVE IS ILLEGAL BECAUSE:
>564 *              NOT W/I A BAND, OR
>565 *              ALREADY AT RIGHT EDGE OF SCREEN.
>566 *              OR AGAINST APPLE AT EDGE.
>567 *              C=0 MOVE IS OK, AND
>568 *              APPLE IS MOVED IF PUSHED.
>569 *****
>570 MRIGHT
>571 ;TEST IF MOVE IS LEGAL->
2C3D: B5 BD >572 LDA DOBAND,X
2C3F: 85 EF >573 STA TEMP1 ;SV FOR APTEST.
2C41: 29 OF >574 AND #$0F ;LN=0(W/I A BAND)?
2C43: D0 5F >575 BNE NOMVH ;JP NO.
>576 ;
2C45: B5 C0 >577 LDA DOPOF,X
2C47: C9 78 >578 CMP #120 ;AT EDGE ALREADY?
2C49: F0 59 >579 BEQ NOMVH ;JP YES.
>580 ;
2C4B: 20 1C 2D >581 JSR APTEST ;AN APPLE ON SAME BAND?
2C4E: D0 33 >582 BNE MVITR ;JP NO.
>583 ;
2C50: B5 C0 >584 LDA DOPOF,X ;GET FOS
2C52: 18 >585 CLC
2C53: 69 08 >586 ADC #8
2C55: D9 D4 00 >587 CMP APPOF,Y ;PUSHING THE AP?
2C5B: D0 29 >588 BNE MVITR ;JP N.
>589 ;
2C5A: B9 D4 00 >590 LDA APPOF,Y
2C5D: C9 78 >591 CMP #120 ;AT EDGE?
2C5F: F0 26 >592 BEQ REVDIR ;JP Y.
>593 ;IS IT A FALLING APPLE?
>594 ;Y=WHICH RAM APPLE IS ON SAME BAND
.
2C61: A5 8D >595 LDA APFALL
2C63: 30 0A >596 BMI OSIDE ;J NO AP FALLING.
2C65: 4A >597 LSR
2C66: 4A >598 LSR
2C67: 4A >599 LSR
2C68: 4A >600 LSR ;GET WHICH IS FALLING.
2C69: 85 F2 >601 STA TEMP4
2C6B: C4 F2 >602 CPY TEMP4 ;IS IT THE ONE BEING PUSHED?
2C6D: F0 35 >603 BEQ NOMVH ;J Y.
>604 ;
>605 * IS SOMEONE PUSHING OTHER SIDE?
>606 *****
>607 OSIDE
2C6F: 18 >608 CLC
2C70: B9 D4 00 >609 LDA APPOF,Y
2C73: 69 08 >610 ADC #8
2C75: 20 EF 2C >611 JSR APPUSH
2C78: B0 0D >612 BCS REVDIR ;J Y.
>613 MVITR
2C7A: 18 >614 CLC
2C7B: A9 01 >615 LDA #1
2C7D: 79 D4 00 >616 ADC APPOF,Y ;MV AP.
2C80: 99 D4 00 >617 STA APPOF,Y
>618 MVITR
2C83: F6 C0 >619 INC DOPOF,X ;MV OBJ.
2C85: 18 >620 CLC
2C86: 60 >621 RTS

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>622
>623 * CAN'T MOVE - SOMEONE ON OTHER
>624 * SIDE OF APPLE BEING PUSHED-->
>625 *****
>626 REVDIR
2C87: 8A >627 TXA
2C88: F0 1A >628 BEQ NOMVH ;J. IF MR.DO.
2C8A: A9 03 >629 LDA #3
2C8C: 95 CB >630 STA DIGIO-1,X
2C8E: 95 C3 >631 STA DIGDAT-1,X
2C90: A9 83 >632 LDA #83
2C92: 95 C9 >633 STA DIGTIM-1,X ;START DIGGING.
2C94: B5 BD >634 LDA DIGBAND-1,X
2C96: 29 70 >635 AND #70 ;BOTTOM?
2C98: F0 06 >636 BEQ DUF ;J Y.
2C9A: A9 01 >637 LDA #DOWND
2C9C: 95 C5 >638 STA DIGDIR-1,X
2C9E: 38 >639 SEC ;FLG FAILED.
2C9F: 60 >640 RTS
>641 DUF
2CA0: A9 00 >642 LDA #UPD ;RIGHTD
2CA2: 95 C5 >643 STA DIGDIR-1,X
>644 ;
>645 * NO MOVE HORIZ EXIT-->
>646 *****
>647 NOMVH
2CA4: 38 >648 SEC
2CA5: 60 >649 RTS

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>651 *****
>652 *MLEFT - MOVE OBJ 1 PIXEL LEFT.
>653 *   ALSO MV APPLE IF PUSHING IT.
>654 *   IN:  X = DO,DIG1,DIG2 IDX.
>655 *       IE. 0,1,2
>656 *
>657 *   OUT: C=1 = ILLEGAL BECAUSE ALREADY AT LEFT EDGE, OR
>658 *           NOT W/I A BAND.
>659 *
>660 *       C=0  MOVE IS OK, AND
>661 *****
>662 MLEFT
>663
2CA6: B5 BD >664 LDA DOBAND,X ;TEST IF MOVE IS LEGAL->
2CA8: B5 EF >665 STA TEMP1 ;SV FOR APTTEST.
2CAA: 29 OF >666 AND #0F ;W/I A BAND?
2CAC: D0 F6 >667 BNE NOMVH ;JP NO.
>668 ;
2CAE: B5 C0 >669 LDA DOPOF,X
2CB0: F0 F2 >670 BEQ NOMVH ;JP IF AT LEFT EDGE ALREADY.
>671 ;TEST IF AN APPLE IS ON SAME BAND-
>
2CB2: 20 1C 2D >672 JSR APTTEST
2CB5: D0 34 >673 BNE MVITL ;JP NO AP ON SAME BAND.
2CB7: B5 C0 >674 LDA DOPOF,X ;GET POS.
2CB9: 38 >675 SEC
2CBA: E9 08 >676 SBC #8 ;C=1
2CBC: D9 D4 00 >677 CMP APPOF,Y
2CBF: D0 2A >678 BNE MVITL ;JP NOT PUSHING.
2CC1: B9 D4 00 >679 LDA APPOF,Y
2CC4: F0 C1 >680 BEQ REVDIR ;JP AP AT EDGE.
>681 ;IS IT FALLING AP?
2CC6: A5 8D >682 LDA APFALL
2CC8: 30 0A >683 BMI OSIDE2 ;J NO AP FALLING.
2CCA: 4A >684 LSR
2CCB: 4A >685 LSR
2CCC: 4A >686 LSR
2CCD: 4A >687 LSR
2CEE: B5 F2 >688 STA TEMP4
2CD0: C4 F2 >689 CPY TEMP4 ;THIS 1 FALLING?
2CD2: F0 D0 >690 BEQ NOMVH ;J Y.
>691 ;
>692 * IS SOMEONE PUSHING OTHER SIDE?
>693 *****
>694 OSIDE2
2CD4: 18 >695 CLC
2CD5: B9 D4 00 >696 LDA APPOF,Y
2CD8: 38 >697 SEC
2CD9: E9 08 >698 SBC #8
2CDB: 30 05 >699 BMI MVITLA ;J NR EDGE.
2CDD: 20 EF 2C >700 JSR APPUSH
2CE0: B0 A5 >701 BCS REVDIR ;J Y.
>702 ;
>703 * MOVE BOTH APPLE & OBJ->
>704 *****
>705 MVITLA
2CE2: 38 >706 SEC
2CE3: B9 D4 00 >707 LDA APPOF,Y
2CE6: E9 01 >708 SBC #1
2CE8: 99 D4 00 >709 STA APPOF,Y
>710 MVITL
2CEB: D6 C0 >711 DEC DOPOF,X ;DEC OBJ POF.
2CED: 18 >712 CLC
2CEE: 60 >713 RTS
>714 ;

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```

>716 * SOMEONE ON OTHER SIDE OF APPLE?
>717 *****
>718 APPUSH
2CEF: 85 EF >719 STA TEMP1 ;SV POS.
2CF1: B9 D0 00 >720 LDA APBAND,Y
2CF4: 29 F0 >721 AND #$F0
2CF6: 85 F1 >722 STA TEMP3 ;SV APPLE BAND.
2CF8: 84 F0 >723 STY TEMP2
2CFA: A0 02 >724 LDY #2
>725 APP2
2CFC: B9 C0 00 >726 LDA DOPDF,Y
2CFF: C5 EF >727 CMP TEMP1
2D01: D0 0E >728 BNE APP9
>729 ;SAME BAND?
2D03: B9 BD 00 >730 LDA DOBAND,Y
2D06: 30 09 >731 BMI APP9 ;J NOT ON.
2D08: 38 >732 SEC
2D09: E5 F1 >733 SBC TEMP3 ;DOBAND-APBAND.
2D0B: F0 0B >734 BEQ APP99 ;J IN WAY.
2D0D: C9 20 >735 CMP #$20 ;1 BAND ABOVE?
2D0F: 90 07 >736 BCC APP99 ;J Y.
>737 APP9
2D11: 88 >738 DEY
2D12: 10 E8 >739 BPL APP2
2D14: 18 >740 CLC
2D15: A4 F0 >741 LDY TEMP2
2D17: 60 >742 RTS
>743 APP99
2D18: A4 F0 >744 LDY TEMP2
2D1A: 38 >745 SEC
2D1B: 60 >746 RTS
>747 ;
>748 *****
>749 * APTTEST - TEST IF APPLE IS ON A CERTAIN BAND.
>750 * IN: TEMP1=(B4-B7)= BAND IN QUESTION.
>751 * OUT:
>752 * NZ= NO APPLE ON BAND.
>753 * Z= YES, APPLE ON BAND &
>754 * Y=IDX FOR WHICH APPLE
>755 *****
>756 APTTEST
2D1C: A0 03 >757 LDY #3
>758 APT1
2D1E: B9 D0 00 >759 LDA APBAND,Y
2D21: 29 F0 >760 AND #$F0
2D23: C5 EF >761 CMP TEMP1 ;AP ON SAME BAND?
2D25: D0 01 >762 BNE APT9 ;JP NO.
2D27: 60 >763 RTS ;RET Z.
>764 APT9
2D28: 88 >765 DEY
2D29: 10 F3 >766 BPL APT1 ;TRY AGAIN.
2D2B: 60 >767 RTS ;RET NZ.
>768 ;
>769 ;
>770 * HI PRIORITY SONG->
>771 SONG
2D2C: 85 86 >772 STA AIDX
2D2E: 85 87 >773 STA BIDX
2D30: A9 00 >774 LDA #0
2D32: 85 88 >775 STA ADUR
2D34: 85 89 >776 STA BDUR
2D36: 60 >777 RTS
>778 ;
>779 * LOW PRIORITY SOUNDS->
>780 LOSND

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2D37: 85 F7	>781	STX	TEMP9	;SV X,
2D39: A6 BD	>782	LDX	DOBAND	
2D3B: 30 OE	>783	BMI	NOSND	;J MF DO OFF.
	>784	SOUND		
2D3D: A6 88	>785	LDX	ADUR	
2D3F: 10 OA	>786	BFL	NOSND	;J SOUND ALREADY ON.
	>787	HISND		
2D41: A6 89	>788	LDX	BDUR	
2D43: 10 06	>789	BFL	NOSND	
2D45: 85 86	>790	STA	AIDX	
2D47: A9 00	>791	LDA	#0	
2D49: 85 88	>792	STA	ADUR	
	>793	NOSND		
2D4B: A6 F7	>794	LDX	TEMP9	;RSTR X,
2D4D: 60	>795	RTS		
	>796			;

```

73          PUT MR.D0.FIELD.RTNS
>1          */MR.D0.FIELD.RTNS LASTED:8/1/83
>2          *****
>3          * FIELD MAP TEST - IS A BIT SET*
>4          *   IN: A = B0-B3 = LN OFFSET   *
>5          *           B4-B6 = BAND NUM    *
>6          *           X = POSTBL IDX      *
>7          *   OUT: Z = BIT IS NOT SET    *
>8          *           NZ= BIT IS SET      *
>9          *****
>10         FMTEST
2D4E: 85 EF >11         STA TEMP1           ;SV BAND/LN.
2D50: 86 F0 >12         STX TEMP2           ;SV POSTBL IDX.
2D52: 20 FB 2D >13        JSR LSR4Y
2D55: A5 F0 >14         LDA TEMP2
2D57: 4A >15           LSR
2D58: 4A >16           LSR
2D59: 4A >17           LSR
2D5A: 4A >18           LSR
2D5B: 4A >19           LSR                ; /32.
2D5C: AA >20           TAX
2D5D: BD 9C 2E >21        LDA FBANK,X       ;LO ADDR OF FLD BANK.
2D60: 85 F1 >22         STA TEMP3
2D62: A9 00 >23        LDA #0
2D64: 85 F2 >24         STA TEMP4
2D66: A5 F0 >25        LDA TEMP2           ;POSTBL IDX.
2D68: 4A >26           LSR
2D69: 4A >27           LSR                ; /4.
2D6A: AA >28           TAX
2D6B: BD 7C 2E >29        LDA FMASK,X       ;MASK FOR BIT IN QUESTION.
2D6E: 49 FF >30         EOR #$FF
2D70: 31 F1 >31        AND (TEMP3),Y
2D72: 08 >32           PHP
2D73: A5 EF >33        LDA TEMP1           ;GET BAND/LN.
2D75: A6 F0 >34        LDX TEMP2
2D77: 28 >35           PLF
2D78: 60 >36           RTS                ;RET W/ANSWER.

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>38 *****
>39 * CCTEST - CHAR CELL TEST *
>40 * TEST IF 2 BITS IN FM =0. *
>41 * IN: A = B0-B3 = LN OFFSET *
>42 * B4-B7 = BAND NUM *
>43 * Y = POSTBL IDX (0-120) *
>44 * OUT: Z= BITS NOT SET *
>45 * NZ= AT LEAST 1 BIT IS SET*
>46 *****
>47 ;ENTRY FOR DIGGERS-->
>48 CCTST
2D79: 85 EF >49 STA TEMP1
2D7B: 84 F0 >50 STY TEMP2
2D7D: B5 C3 >51 LDA DIGDAT-1,X
2D7F: 29 FE >52 AND #$FE ;CLR B0.
2D81: 49 02 >53 EOR #2 ;DIG IMG?
2D83: D0 08 >54 BNE CCT1 ;J N.
2D85: A9 00 >55 LDA #0 ;SET EQ.
2D87: F0 26 >56 BEQ DIGING ;J Y.
>57 CCTEST
2D89: 85 EF >58 STA TEMP1 ;SV BAND/LN.
2D8B: 84 F0 >59 STY TEMP2 ;SV POSTBL IDX.
>60 ;SET UP INDIRECT PTR TO FLD BANK-->
>61 CCT1
2D8D: 98 >62 TYA ;POS.
2D8E: 4A >63 LSR
2D8F: 4A >64 LSR
2D90: 4A >65 LSR
2D91: 4A >66 LSR
2D92: 4A >67 LSR ;POS/32.
2D93: A8 >68 TAY
2D94: B9 9C 2E >69 LDA FBANK,Y ;LO ADDR OF FLD BANK.
2D97: 85 F1 >70 STA TEMP3
2D99: A9 00 >71 LDA #0
2D9B: 83 F2 >72 STA TEMP4
>73 ;GET MASK TO "AND"-->
2D9D: A5 F0 >74 LDA TEMP2 ;
2D9F: 4A >75 LSR
2DA0: 4A >76 LSR
2DA1: 4A >77 LSR ;POS/8.
2DA2: A8 >78 TAY
2DA3: B9 E8 2F >79 LDA CCMASK,Y ;MASK FOR 2 BITS.
2DA6: 48 >80 PHA ;SV.
2DA7: A5 EF >81 LDA TEMP1
2DA9: 20 FB 2D >82 JSR LSR4Y
2DAC: 68 >83 PLA ;GET MASK.
2DAD: 31 F1 >84 AND (TEMP3),Y
>85 DIGING
2DAF: 08 >86 PHP
2DB0: A5 EF >87 LDA TEMP1
2DB2: A4 F0 >88 LDY TEMP2
2DB4: 28 >89 PLS
2DB5: 60 >90 RTS

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>92 *****
>93 * FMRMV - REMOVE 2 BITS IN FLD *
>94 * MAP *
>95 * IN: A = BAND/LN *
>96 * X = POSTBL IDX. *
>97 * OUT: BITS RMVD IN FLD MAP AT *
>98 * POSIDX AND POSIDX+4. *
>99 * (ONLY IF LN OFFSET=0) *
>100 *****
>101 FMRMV
2DB6: 84 F4 >102 STY TEMP6 ;SV Y.
2DB8: 85 EF >103 STA TEMP1 ;SV BAND/LN.
2DBA: 86 F0 >104 STX TEMP2 ;SV POSTBL IDX.
2DBC: 29 0F >105 AND #0F ;LN=0?
2DBE: F0 04 >106 BEQ RMV1 ;JP ENTIRELY IN CHAR CELL.
2DC0: C9 01 >107 CMP #1
2DC2: D0 34 >108 BNE RMV99 ;J NOT JUST 1 LINE DOWN.
>109 ;
>110 RMV1
2DC4: A5 EF >111 LDA TEMP1
2DC6: 20 FB 2D >112 JSR LSR4Y
2DC7: A9 01 >113 LDA #1
2DCB: 85 F3 >114 STA TEMP5 ;DO THIS 2 TIMES.
>115 RMV2
2DCD: A5 F0 >116 LDA TEMP2 ;POSTBL IDX.
2DCF: 4A >117 LSR
2DD0: 4A >118 LSR
2DD1: 4A >119 LSR
2DD2: 4A >120 LSR
2DD3: 4A >121 LSR ;/32.
2DD4: AA >122 TAX
2DD5: BD 9C 2E >123 LDA FBANK,X ;LO ADDR OF FLD BANK.
2DD8: 85 F1 >124 STA TEMP3
2DDA: A9 00 >125 LDA #0
2DDC: 85 F2 >126 STA TEMP4
>127 * NOW GET MASK TO RMV BIT->
2DDE: A5 F0 >128 LDA TEMP2 ;POSTBL IDX.
2DE0: 4A >129 LSR
2DE1: 4A >130 LSR ;/4.
2DE2: AA >131 TAX
2DE3: BD 7C 2E >132 LDA FMASK,X
2DE6: 31 F1 >133 AND (TEMP3),Y ;APPLY MASK.
2DE8: 91 F1 >134 STA (TEMP3),Y
2DEA: C6 F3 >135 DEC TEMP5
2DEC: 30 0A >136 BMI RMV99 ;JP DONE TWICE.
>137 ;ADD 4 TO POSTBL IDX->
2DEE: A5 F0 >138 LDA TEMP2
2DF0: 18 >139 CLC
2DF1: 69 04 >140 ADC #4
2DF3: 85 F0 >141 STA TEMP2 ;NEW POSTBL IDX.
2DF5: 4C CD 2D >142 JMP RMV2 ;DO IT AGAIN.
>143 RMV99
2DF8: A4 F4 >144 LDY TEMP6 ;RSTR Y.
2DFA: 60 >145 RTS
>146 ;
>147
>148 LSR4Y
2DFB: 4A >149 LSR
2DFC: 4A >150 LSR
2DFD: 4A >151 LSR
2DFE: 4A >152 LSR
2DFF: 29 07 >153 AND #7
2E01: A8 >154 TAY
2E02: 60 >155 RTS

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```

25          OBJ BEGOBJ+$E07
26          ORG BEGORG+$E07
27          *****
28          * ORCHARD DATA TABLES *
29          *****
30          PUT MR.DO.FIELD DATA
31          *MR.DO.FIELD DATA LASTED 7/29/83
32          *****
33          *      ASYM FLD DATA TABLES      *
34          *****
35
36          FR2R2
2E07: FF 00 FF
2E0A: FF
2E0B: FF FF FF
2E0E: 0F 3F 3F
2E11: 3F
2E12: 3F 3F 3F
2E15: 0F 3F 3F
2E18: 00
2E19: 3F FF FF
2E1C: FF
2E1D: 00 FF FF
2E20: FF
2E21: FF FF FF
2E24: 00
2E25: FF
2E26: FF FF FF
2E29: FF
2E2A: FF FF FF
2E2D: 00
2E2E: 3F 3F 3F
2E31: 3F
2E32: FF 00 0F
2E35: FF
2E36: FF FF FF
2E39: FF
2E3A: FF FF FF
2E3D: 00
2E3E: FC FC 00
2E41: FF
2E42: FF FF FF
2E45: FF
2E46: 00 0F 3F
2E49: 3F

```

27 DFB \$FF,\$00,\$FF,\$FF
 28 DFB \$FF,\$FF,\$FF
 29 FR2L1
 30 DFB \$0F,\$3F,\$3F,\$3F
 31 DFB \$3F,\$3F,\$3F
 32 FR2L8
 33 DFB \$0F,\$3F,\$3F,\$00
 34 FR2R8
 35 DFB \$3F,\$FF,\$FF,\$FF
 36 FR2R1
 37 FR2R6
 38 DFB \$00,\$FF,\$FF
 39 FR1R4
 40 DFB \$FF
 41 FR1L4
 42 FR2R7
 43 DFB \$FF,\$FF,\$FF
 44 FR1L3
 45 DFB \$00
 46 FR1L1
 47 FR1L6
 48 DFB \$FF
 49 FR2R3
 50 FR1L5
 51 DFB \$FF,\$FF,\$FF
 52 FR2R4
 53 DFB \$FF
 54 FR1L8
 55 DFB \$FF,\$FF,\$FF,\$00
 56 DFB \$3F,\$3F,\$3F,\$3F
 57 FR1R2
 58 DFB \$FF,\$00,\$0F,\$FF
 59 FR1L2
 60 DFB \$FF,\$FF,\$FF,\$FF
 61 DFB \$FF,\$FF,\$FF,\$00
 62 FR1R5
 63 DFB \$FC,\$FC,\$00,\$FF
 64 FR1R8
 65 DFB \$FF,\$FF,\$FF,\$FF
 66 FR1R1
 67 DFB \$00,\$0F,\$3F,\$3F

2E4A: 3F 3F 0F	>48	DFB	\$3F,\$3F,\$0F,\$00
2E4D: 00	>49	FR1L7	
2E4E: 3F	>50	DFB	\$3F
	>51	FR1R7	
2E4F: 3F 3F 3F	>52	DFB	\$3F,\$3F,\$3F
	>53	FR2L3	
2E52: 00	>54	DFB	0
	>55	FR2L2	
2E53: 3F 3F 3F			
2E56: 3F	>56	DFB	\$3F,\$3F,\$3F,\$3F
	>57	FR2L4	
2E57: 3F 3F 3F			
2E5A: 00	>58	DFB	\$3F,\$3F,\$3F,\$00
	>59	FR2L6	
2E5B: 3F FF FF			
2E5E: FF	>60	DFB	\$3F,\$FF,\$FF,\$FF
	>61	FR2L7	
2E5F: 3F 3F 3F			
2E62: 3F	>62	DFB	\$3F,\$3F,\$3F,\$3F
	>63	FR2R5	
2E63: 00	>64	DFB	\$00
	>65	FR1R3	
2E64: FF FF FF			
2E67: FF	>66	DFB	\$FF,\$FF,\$FF,\$FF
2E68: FF FF 3F			
2E6B: 00	>67	DFB	\$FF,\$FF,\$3F,\$00
	>68		;
	>69	FR2L5	
2E6C: 0F 3F 3F			
2E6F: 3F	>70	DFB	\$0F,\$3F,\$3F,\$3F
2E70: 3F 3F 3F			
2E73: 00	>71	DFB	\$3F,\$3F,\$3F,\$00
	>72		;
	>73	FR1R6	
2E74: 00 0F 3F			
2E77: 3F	>74	DFB	\$00,\$0F,\$3F,\$3F
2E78: 3F 3F 3F			
2E7B: 00	>75	DFB	\$3F,\$3F,\$3F,\$00
	>76		;
	>77		;
	>78	*****	
	>79	* BIT MASKS TO REMOVE BITS IN FIELD REGS 1 & 2, (LEFT & RIGHT).	
2E80: 7F BF DF	>80	* TABLE IS IDXED BY A POSITION/8 (0 TO 31).	
2E81: EF F7 FB	>81	* MASK FOUND IS "AND'ED" TO APPROP FIELD REG RAM CELL.	
2E82: FD FE	>82	*****	
	>83	FMASK	
	>84	* FR1 LEFT MASKS-->	
2E85: 7F BF DF	>85	DFB	\$7F,\$BF,\$DF,\$EF,\$F7,\$FB,\$FD,\$FE
2E86: EF F7 FB	>86		;
2E87: FD FE	>87	* FR2 LEFT MASKS-->	
2E88: FE FD FB	>88	DFB	\$FE,\$FD,\$FB,\$F7,\$EF,\$DF,\$BF,\$7F
2E89: F7 EF DF	>89		;
2E90: BF 7F	>90	* FR2 RIGHT MASKS-->	
2E91: 7F BF DF	>91	DFB	\$7F,\$BF,\$DF,\$EF,\$F7,\$FB,\$FD,\$FE
2E92: EF F7 FB	>92		;
2E93: FD FE	>93	* FR1 RIGHT MASKS-->	
2E94: FE FD FB			
2E97: F7 EF DF			


```

2E9A: BF 7F          DFB $FE,$FD,$FB,$F7,$EF,$DF,$BF,$7F
>95
>96 *****
>97 * START OF FIELD REG MAPS.
>98 * IDX FROM ABOVE IS /8 TO IDX INTO THIS TABLE.
>99 * THESE ARE LD BYTE ADDRS TO EACH BANK OF FLD REG DATA.
>100 *****
>101 FBANK
2E9C: 98            >102 DFB FR1L
2E9D: A0            >103 DFB FR2L
2E9E: A8            >104 DFB FR2R
2E9F: B0            >105 DFB FR1R
>106
>107
>108 *****
>109 * PTRS TO APPROP FIELD TABLES *
>110 * BY ROUND NUMBER. *
>111 *****
>112 F1LADR
2EA0: 25            >113 DFB <FR1L1
2EA1: 36            >114 DFB <FR1L2
2EA2: 24            >115 DFB <FR1L3
2EA3: 21            >116 DFB <FR1L4
2EA4: 26            >117 DFB <FR1L5
2EA5: 25            >118 DFB <FR1L6
2EA6: 4E            >119 DFB <FR1L7
2EA7: 2A            >120 DFB <FR1L8
>121 F2LADR
2EA8: 0E            >122 DFB <FR2L1
2EA9: 53            >123 DFB <FR2L2
2EAA: 52            >124 DFB <FR2L3
2EAB: 57            >125 DFB <FR2L4
2EAC: 6C            >126 DFB <FR2L5
2EAD: 5B            >127 DFB <FR2L6
2EAE: 5F            >128 DFB <FR2L7
2EAF: 15            >129 DFB <FR2L8
>130 F2RADR
2EB0: 1D            >131 DFB <FR2R1
2EB1: 07            >132 DFB <FR2R2
2EB2: 26            >133 DFB <FR2R3
2EB3: 29            >134 DFB <FR2R4
2EB4: 63            >135 DFB <FR2R5
2EB5: 1D            >136 DFB <FR2R6
2EB6: 21            >137 DFB <FR2R7
2EB7: 19            >138 DFB <FR2R8
>139 F1RADR
2EB8: 46            >140 DFB <FR1R1
2EB9: 32            >141 DFB <FR1R2
2EBA: 64            >142 DFB <FR1R3
2EBB: 20            >143 DFB <FR1R4
2EBC: 3E            >144 DFB <FR1R5
2EBD: 74            >145 DFB <FR1R6
2EBE: 4F            >146 DFB <FR1R7
2EBF: 42            >147 DFB <FR1R8
>148
>149 * APPLE STARTING POSITION TABLES-
>150 *****
>151 AP1POF
2EC0: 28 60 28      >152 DFB 40,96,40,24,80,00,08,56
2EC3: 18 50 00      >153 AP1POS
2EC6: 08 38          >154
2EC8: 08 50 30      >155 DFB 8,80,48,112,72,48,56,104
2ECB: 70 48 30
2ECE: 38 68

```

2ED0:	68	48	50		
2ED3:	28	20	40		
2ED6:	40	08		>156	DFB 104,72,80,40,32,64,64,08
				>157	AF2POS
2ED8:	20	28	18		
2ED8:	30	68	70		
2EDE:	48	18		>158	DFB 32,40,24,48,104,112,72,24
				>159	AF3POF
2EE0:	48	68	08		
2EE3:	48	08	48		
2EE6:	08	40		>160	DFB 72,104,08,72,08,72,08,64
				>161	AF3POS
2EE8:	58	68	48		
2EE8:	40	48	60		
2EEE:	28	50		>162	DFB 88,104,72,64,72,96,40,80
				>163	AF4POF
2EF0:	18	10	70		
2EF3:	08	70	30		
2EF6:	20	48		>164	DFB 24,16,112,08,112,48,32,72
				>165	AF4POS
2EF8:	28	30	40		
2EF8:	28	28	28		
2EFE:	48	00		>166	DFB 40,48,64,40,40,40,72,0
				>167	;

```

82          OBJ  BEGORG+$F00
83          ORG  BEGORG+$F00
84          *****
85          *  CHERRY DATA TABLES  *
86          *****
87          PUT  MR.DO.CHERRY TABLES
>1          */MR.DO CHERRY TBL LASTED 8/1/83.
>2          *****
>3          *  CHERRY HIT DETECT TABLES-->  *
>4          *****
>5          ;
>6          *  REPITITION,SPACING TABLE-->
>7          *  INDEXED BY CHERRY CONTROL VALUE X 2.
>8          ;
>9          REPSPA
>10         ;COPIES,SPACING/8->
2F00: 01 00 >11         DFB  1,0          ;1C,0S.
2F02: 02 02 >12         DFB  2,2          ;2C,8S.
2F04: 02 04 >13         DFB  2,4          ;2C,24S.
2F06: 03 02 >14         DFB  3,2          ;3C,8S.
2F08: 02 08 >15         DFB  2,8          ;2C,56S.
2F0A: 00 00 >16         DFB  0,0          ;ILLEGAL
2F0C: 03 04 >17         DFB  3,4          ;3C 24 S.
>18         *  ADDRESSES TO APPROP TRANSITION
>19         *  TABLE (IDXED BY CHERRY CONTROL VALUE).
>20         *-----
>21         HIT TBL
2F0E: 15 >22         DFB  <V1C          ;1 COPY.
2F0F: 17 >23         DFB  <V2C8S       ;2 COPY,8 SPACES.
2F10: 17 >24         DFB  <V2C24S     ;2 COPY,24 SPACES.
2F11: 1B >25         DFB  <V3C8S       ;3COPY,8SPACES.
2F12: 17 >26         DFB  <V2C56S     ;2 COPY,56 SPACES.
2F13: 00 >27         DFB  0            ;ILLEGAL.
2F14: 21 >28         DFB  <V3C24S     ;3 COPY,24 SPACES.
>29         ;
>30         *****
>31         *  CHERRY CONTROL TRANSITION  *
>32         *  TABLES-->  *
>33         *****
>34         ;
>35         *  CHERRIES HIT-TESTED FROM LEFTMOST TO RIGHTMOST CHERRY.
>36         ;
>37         *  INDEXED BY NUM TIMES CHERRY FOS HAD TO BE TESTED BEFORE F
DUND.
>38         *  IE (0 TO 2)*2.
>39         *  NEW CONTROL,NUM TIMES TO ADD SPACING TO CPOF.
>40         *****
>41         V1C
2F15: 00 00 >42         DFB  0,0          ;ALL GONE.
>43         V2C8S
>44         V2C24S
>45         V2C56S
>46         ;
2F17: 80 01 >47         DFB  $80,1       ;LEFT->
>48         ;
2F19: 80 00 >49         DFB  $80,0       ;RIGHT->
>50         V3C8S
>51         ;
2F1B: 81 01 >52         DFB  $81,1       ;LEFT->
>53         ;
2F1D: 82 00 >54         DFB  $82,0       ;MID->
>55         ;
2F1F: 81 00 >56         DFB  $81,0       ;RIGHT->
>57         V3C24S
>58         ;LEFT->

```

```

2F21: 82 01 >59 DFB $82,1 ;MID->
2F23: 84 00 >61 DFB $84,0 ;RIGHT->
2F25: 82 00 >63 DFB $82,0
>64 ;
>65 ;
>66 *****
>67 * INITIAL CHERRY POF/CONTROL *
>68 * ADDRESSES BY ROUND NUMBER *
>69 * B0-B2= CHERRY CONTROL VALUE *
>70 * B3-B6= INDEX TO POFIDX TABLE *
>71 * B7 = SOME CHERRY, NO CHERRY *
>72 *****
>73 CCTLAD
2F27: 2F >74 DFB <CCTL1
2F28: 3D >75 DFB <CCTL2
2F29: 45 >76 DFB <CCTL3
2F2A: 4D >77 DFB <CCTL4
2F2B: 35 >78 DFB <CCTL5
2F2C: 55 >79 DFB <CCTL6
2F2D: 5D >80 DFB <CCTL7
2F2E: 65 >81 DFB <CCTL8
>82 ;
>83 CCTL1
2F2F: 83 83 D3 >84 DFB $83,$83,$D3,$D3,$C3,$C3
2F32: D3 C3 C3 >85 CCTL5
2F35: 83 83 93
2F38: 93 C3 C3
2F3B: DB DB >86 DFB $83,$83,$93,$93,$C3,$C3,$DB,$DB
>87 CCTL2
2F3D: 8B 8B C3
2F40: C3 83 83
2F43: DB DB >88 DFB $8B,$8B,$C3,$C3,$83,$83,$DB,$DB
>89 CCTL3
2F45: CB CB 93
2F48: 93 DB DB
2F4B: 83 83 >90 DFB $CB,$CB,$93,$93,$DB,$DB,$83,$83
>91 CCTL4
2F4D: 93 93 DB
2F50: DB 83 83
2F53: CB CB >92 DFB $93,$93,$DB,$DB,$83,$83,$CB,$CB
>93 CCTL6
2F55: 83 83 9B
2F58: 9B CB CB
2F5B: 8B 8B >94 DFB $93,$83,$9B,$9B,$CB,$CB,$8B,$8B
>95 CCTL7
2F5D: D3 D3 93
2F60: 93 D3 D3
2F63: 93 93 >96 DFB $D3,$D3,$93,$93,$D3,$D3,$93,$93
>97 CCTL8
2F65: 8B 8B CB
2F68: CB 93 93
2F6B: C3 C3 >98 DFB $8B,$8B,$CB,$CB,$93,$93,$C3,$C3
>99 ;
>100 * TIME ( X 2 SEC) BEFORE A NEW
>101 * TURNS INTO A DIGGER.
>102 * IDXED BY ROUND.
>103 *****
>104 IQTBL
>105 DTIME
2F6D: 0B 0B 07
2F70: 04 02 06
2F73: 02 04 >106 DFB 8,8,7,4,2,6,2,4
2F75: 05 02 07
2F78: 03 07 03

```

```

2F73: 04 03 02
2F7B: 04 01 >107 DFB 5,2,3,4,3,2,4,1
2F7D: 01 02 03
2F80: 04 >108 DFB 1,2,3,4
>109 * HOW LONG THEY STAY AS DIGGERS->
>110 *****
>111 DDUR

2F81: 81 81 82
2F84: 82 >112 DFB $81,$91,$82,$82
2F85: 85 82 81
2F88: 83 >113 DFB $85,$82,$81,$83
2F89: 84 85 84
2F8C: 85 >114 DFB $84,$85,$84,$85
2F8D: 83 81 85
2F90: 83 >115 DFB $83,$81,$85,$83
2F91: 83 84 81
2F94: 82 >116 DFB $83,$84,$81,$82
>117 ;
>118 * DIGGER SPEED TABLES-->
>119 *****
>120 * B0=UP SPEED.
>121 * B1=DOWN SPEED.
>122 * B2=LEFT SPEED.
>123 * B3=RIGHT SPEED.
>124 * IDX TABS BY DIGSPD
>125 *****
>126 SFDTBL

2F95: 00 00 00
2F98: 08 >127 DFB 0,0,0,8
2F99: 01 04 06
2F9C: 03 >128 DFB 1,4,6,3
2F9D: 0A 0F 0C
2FA0: 09 >129 DFB $0A,$0F,$0C,$09
2FA1: 07 0B 0F
2FA4: 0D >130 DFB $07,$0B,$0F,$0D
2FA5: 0E 0F 0E
2FA8: 0F >131 DFB $0E,$0F,$0E,$0F
>132 ;
>133 ;
>134 *****
>135 * IN X=IDX TO DESIRED SPRITE
>136 * IE. 0=MR DO.
>137 * DIGBAND-DOBAND=1ST DIG.
>138 * DIGBAND+1-DOBAND=2ND DIG.
>139 * OUT C=1=HIT AND MIS IS OFF.
>140 * C=0=NOHIT.
>141 *****
>142 PWRHIT

2FA9: B5 BD >143 LDA DOBAND,X
2FAB: 30 39 >144 BMI NOHITF ;J OBJ NOT ON.
2FAD: 29 0F >145 AND #$0F
2FAF: 85 EF >146 STA TEMP1 ;SV OBJ LN OFFSET.
2FB1: A9 0F >147 LDA #$0F
2FB3: 38 >148 SEC
2FB4: E5 B9 >149 SBC MISLN
2FB6: 85 F0 >150 STA TEMP2 ;SV (15-MISLN).
2FB8: B5 BD >151 LDA DOBAND,X
2FBA: 4A >152 LSR
2FBB: 4A >153 LSR
2FBC: 4A >154 LSR
2FBD: 4A >155 LSR
2FBE: 38 >156 SEC
2FBF: E5 BA >157 SBC MSBAND ;BAND-MSBAND.
2FC1: D0 08 >158 BNE PH55 ;J NOT SAME BAND.
>159 ;
2FC3: A5 F0 >160 LDA TEMP2

```

2FD5:	B5 C0	>173	LDA	DOPOF,X	
2FD7:	C5 BB	>174	CMP	MISPOF	
2FD9:	B0 0B	>175	BCS	NOHITP	:J OBJ>MIS.
2FDB:	69 06	>176	ADC	#6	
2FDD:	C5 BB	>177	CMP	MISPOF	
2FDF:	90 05	>178	BCC	NOHITP	:J OBJ+7<MISPOF.
2FE1:	A9 80	>179	LDA	#\$80	
2FE3:	85 BA	>180	STA	MSBAND	:TURN OFF MIS.
2FE5:	60	>181	RTS		:RET W/HIT FLAG.
		>182	NOHITP		
2FE6:	18	>183	CLC		
2FE7:	60	>184	RTS		
		>185			:
		>186			:FLD MASKS->
		>187	CCMASK		
2FEB:	C0 30 0C				
2FEB:	03	>188	DFB	\$C0,\$30,\$0C,\$03	
2FEC:	03 0C 30				
2FEF:	C0	>189	DFB	\$03,\$0C,\$30,\$C0	
2FF0:	C0 30 0C				
2FF3:	03	>190	DFB	\$C0,\$30,\$0C,\$03	
2FF4:	03 0C 30				
2FF7:	C0	>191	DFB	\$03,\$0C,\$30,\$C0	
		>192			:


```

      89      OBJ  BEGOBJ+$FFC
      90      ORG  BEGORG+$FFC
2FFC: 12 20   91      DA  PWRUP
      92      END

```

--End assembly--

2 bytes

Errors: 0

Symbol table - alphabetical order:

ABORT	=\$2100	ABOVE0	=\$222D	ABOVE1	=\$2230	ABOVE2	=\$2247
ABOVE3	=\$2240	ABOVE6	=\$225A	ABOVE7	=\$2261	ABVL	=\$224C
? ADAT	=\$E5	ADD1K	=\$24CD	ADD44	=\$2B4B	ADD55	=\$2B52
ADDPTS	=\$2B23	ADUR	=\$88	AIDX	=\$86	ALF99	=\$2506
ALFRET	=\$2BA9	ALFT5	=\$2B97	ALGONE	=\$2058	ALPHA	=\$8B
ANIM8	=\$8E	AP1POF	=\$2EC0	AP1POS	=\$2EC8	AP2POF	=\$2ED0
AP2POS	=\$2ED8	AP3POF	=\$2EE0	AP3POS	=\$2EE8	AP4POF	=\$2EF0
AP4POS	=\$2EF8	APBAND	=\$D0	APFALL	=\$8D	APLEFT	=\$2419
? APOF	=\$E7	APP2	=\$2CFC	APP9	=\$2D11	APP99	=\$2D18
? APPLE	=\$233C	APPLE1	=\$2A0F	APPLE2	=\$2A1C	APPLE3	=\$2A29
APPLE4	=\$2A36	APPOF	=\$D4	APPUSH	=\$2CEF	APRITE	=\$2421
? APRMV	=\$23B9	APT1	=\$2D1E	APT9	=\$2D28	APTEST	=\$2D1C
? ATACOL	=\$06	? ATACTL	=\$04	? ATADAT	=\$1B	? ATBCOL	=\$07
? ATBCTL	=\$05	? ATBDAT	=\$1C	ATBLNK	=\$01	? ATFCOL	=\$08
ATFCTL	=\$0A	ATJBA	=\$3C	? ATMVIN	=\$2A	? ATREMV	=\$2B
? ATSALA	=\$10	? ATSBLA	=\$11	ATSCOL	=\$09	ATSYNC	=\$00
ATWAIT	=\$02	? AVAIL	=\$2850	? BAND	=\$DD	? BDAT	=\$F6
BDUR	=\$89	BEEP	=\$08	BEGOBJ	=\$8004	BEGORG	=\$2000
BELL3	=\$14	BELOW0	=\$21FC	BELOW1	=\$2201	BIDX	=\$87
BLACK	=\$00	BLKWHT	=\$2818	BLOL	=\$220F	BLOW1	=\$27B3
? BLUE	=\$B6	BOOF	=\$0E	BOTTIM	=\$AC	BOTVI	=\$202E
? BPOF	=\$F8	BRKIT	=\$24BC	? BROWN	=\$12	BUT4	=\$2779
BUT5	=\$277F	BUTTON	=\$2765	CATCH	=\$289A	CCMASK	=\$2FE8
CCT1	=\$2D8D	CCTEST	=\$2D89	CCTL1	=\$2F2F	CCTL2	=\$2F3D
CCTL3	=\$2F45	CCTL4	=\$2F4D	CCTL5	=\$2F35	CCTL6	=\$2F55
CCTL7	=\$2F5D	CCTL8	=\$2F65	CCTLAD	=\$2F27	CCTST	=\$2D79
CH1	=\$2A8A	CH2	=\$2A93	CH25	=\$2AC7	CH50	=\$2ADB
CH75	=\$2AF1	CH80	=\$2AFD	CHER1	=\$1C	CHER2	=\$29
CHER3	=\$36	CHER4	=\$43	CHER5	=\$50	CHER6	=\$5D
CHERE	=\$2AAA	CHERRYC	=\$90	CHERRYT	=\$8C	CHIT	=\$2A7F
CHKHRZ	=\$2700	CHRPTS	=\$2B1D	CLRAM	=\$2017	CNOTE	=\$2B17
CTIME	=\$26B0	D10N	=\$2537	DDUR	=\$2F81	DEADSND	=\$00
DIDMOV	=\$22E4	DIGBAND	=\$BE	DIGDAT	=\$C4	DIGDIR	=\$C6
DIGING	=\$2DAF	DIGINV	=\$8A	DIGIO	=\$CC	DIGPOF	=\$C1
DIGSPD	=\$C8	DIGTIM	=\$CA	DIR25	=\$221B	DIRTBL	=\$2324
DLRU	=\$2336	DMASK	=\$24CA	DOBAND	=\$BD	? DODAT	=\$C3
DODEAD	=\$20	DOINV	=\$DB	DOPOF	=\$C0	DOWN	=\$272D
DOWND	=\$01	? DOWNI	=\$04	DRAGEM	=\$2441	DRAGIT	=\$244C
DRAGT	=\$23F3	DRAGTB	=\$20E2	DRLU	=\$2330	DSFD	=\$2A70
DSFD2	=\$2A79	DTIM9	=\$2667	DTIME	=\$2F6D	DUP	=\$2CA0
EAT5	=\$2516	EATTST	=\$2052	EMV	=\$21A5	END	=\$2FFE
ENDB01	=\$233C	ENDJOY	=\$2839	ENDMV	=\$2136	ENDTIM	=\$24D7
? EVO	=\$2627	EVO2	=\$2635	EVO5	=\$264C	EVO7	=\$2658
EVO88	=\$2669	EVO99	=\$266C	? EVOCHK	=\$2633	F03	=\$238B
F1LADR	=\$2EA0	F1RADR	=\$2EB8	F2LADR	=\$2EA8	F2RADR	=\$2EB0
F44	=\$2398	F47	=\$23AA	F55	=\$23B1	F57	=\$23CB
FALL99	=\$24D7	FALLMON	=\$237B	FBANK	=\$2E9C	FCOLOR	=\$8F
FLDCOL	=\$2829	FLDOUT	=\$20C9	FMAP2	=\$20D8	FMASK	=\$2E7C
FMRMV	=\$2DB6	FMTEST	=\$2D4E	FR1L	=\$98	FR1L1	=\$2E2E
FR1L2	=\$2E36	FR1L3	=\$2E24	FR1L4	=\$2E21	FR1L3	=\$2E26

FR1L5	=\$2E25	FR1L7	=\$2E4E	FR1L8	=\$2E2A	FR1R	=\$B0
FR1R1	=\$2E46	FR1R2	=\$2E32	FR1R3	=\$2E64	FR1R4	=\$2E20
FR1R5	=\$2E3E	FR1R6	=\$2E74	FR1R7	=\$2E4F	FR1R8	=\$2E42
FR2L	=\$A0	FR2L1	=\$2E0E	FR2L2	=\$2E53	FR2L3	=\$2E52
FR2L4	=\$2E57	FR2L5	=\$2E6C	FR2L6	=\$2E5B	FR2L7	=\$2E5F
FR2L8	=\$2E15	FR2R	=\$A8	FR2R1	=\$2E1D	FR2R2	=\$2E07
FR2R3	=\$2E26	FR2R4	=\$2E29	FR2R5	=\$2E63	FR2R6	=\$2E1D
FR2R7	=\$2E21	FR2R8	=\$2E19	FRAMEH	=\$B5	FRAMEL	=\$B4
FTST	=\$27B8	GAME	=\$B0	GAMOVR	=\$40	GOLD	=\$16
GOVER	=\$25BC	GREEN	=\$34	HAVDIR	=\$2263	HAVIT	=\$2B9E
HCHG	=\$2901	HIDATA	=\$E6	HIDATB	=\$F7	HISND	=\$2D41
HIT2	=\$2079	HITTB	=\$2F0E	HOR99	=\$290C	HORV	=\$22F7
IGAME	=\$2987	IIS	=\$209E	I19	=\$20A4	ILL1	=\$26FD
ILLEG	=\$2749	INCINV	=\$2098	IDTBL	=\$2F6D	IRND	=\$29E7
IROUND	=\$29A7	JOY1	=\$26E5	JOY98	=\$2763	JOY99	=\$2765
JOYADN	=\$20	JOYALT	=\$40	JOYART	=\$B0	JOYAUF	=\$10
JOYDAT	=\$0280	JOYRD	=\$26BB	KEEPMV	=\$210D	KM5	=\$2139
KM7	=\$215E	KML2	=\$216D	KMLFT	=\$2162	KMRT	=\$2184
KMRT2	=\$2190	LASTJY	=\$B8	LBLUE	=\$96	LDUR	=\$2326
LEFT	=\$270F	LEFTD	=\$03	LEFTI	=\$0C	LODATA	=\$DE
LODATB	=\$EF	LOSND	=\$2D37	LGR4Y	=\$2DFB	LUDR	=\$2332
MDDN	=\$229B	MDLT	=\$2285	MDLTJP	=\$22E1	MDOHIT	=\$20A5
MDOWN	=\$2BAF	MDRT	=\$2268	MDRT2	=\$2278	MDRT4	=\$2280
MDUP	=\$22B1	MID15	=\$23E5	MID5	=\$23D6	MIDAIR	=\$23CD
MIDTIM	=\$BC	MISDIR	=\$BC	MISLN	=\$B9	MISPOF	=\$BB
MLEFT	=\$2CA6	MODE	=\$DA	MONSTR	=\$2DAA	MRIGHT	=\$203D
MSBAND	=\$EA	MUF	=\$2BF7	MUX	=\$CE	MVC1	=\$20ED
MVCHK	=\$20E4	MVD2	=\$2147	MVD25	=\$2BCA	MVD50	=\$2BCE
MVD52	=\$2BE9	MVD55	=\$2BF1	MVD56	=\$2BF3	MVITL	=\$2CEB
MVITLA	=\$20E2	MVITR	=\$20B3	MVITRA	=\$2C7A	MVU2	=\$211E
MVU3	=\$2126	MVU50	=\$2C07	MVU52	=\$2C28	MVU53	=\$2C2E
MVU55	=\$2C34	NEWDIR	=\$21E3	NEWMOV	=\$21A8	NEWNRD	=\$205F
NF5	=\$2359	NF9	=\$2364	NG99	=\$22F4	NJOY	=\$26E8
NM1	=\$21D2	NM2	=\$21D9	NM3	=\$21E0	NMOV	=\$20EA
NOBOR	=\$2305	NOBOR2	=\$2321	NOBUT	=\$27CC	NOCH	=\$2815
NOCHER	=\$26B4	NOCHG	=\$2B7F	NOG00D	=\$22C7	NOHIT	=\$20C0
NOH1TP	=\$2FE6	NOMORE	=\$20A9	NOMOV	=\$2BF5	NOMVH	=\$2CA4
NOPWR	=\$2849	NORES	=\$27D8	NOSEL	=\$2805	NOSND	=\$2D4B
NOTDIG	=\$2684	NOTIM	=\$2518	NOX	=\$261D	NOXTRA	=\$256B
NXTTRY	=\$2092	NXTTST	=\$2453	NYET	=\$240A	ORANGE	=\$2B
ORGTBL	=\$24C6	OSIDE	=\$2C6F	OSIDE2	=\$2CD4	PD1	=\$FC
PD10	=\$FA	PD100	=\$F8	PD100K	=\$F2	PD10K	=\$F4
PD1K	=\$F6	PDOWN	=\$294C	PH55	=\$2FCB	PLAY	=\$10
PMODE	=\$203E	PP2	=\$2883	PP3	=\$2885	PRIGHT	=\$28E6
PTIME	=\$297F	PTR	=\$DC	PUR4	=\$2920	PURPLE	=\$68
PVHIT	=\$2FD5	PWLN	=\$296F	PWPOF	=\$296B	PWRO	=\$28BA
PWR2	=\$2855	PWR3	=\$28A1	PWR55	=\$28A3	PWR66	=\$28AE
PWR84	=\$28C2	PWR86	=\$28D5	PWR99	=\$2984	PWRDEC	=\$284C
PWRDIR	=\$2825	PWRHIT	=\$2FA9	PWRLN	=\$281D	PWRMOV	=\$28DA
PWROFF	=\$2821	PWRTIM	=\$D8	PWRUP	=\$2012	RANDOM	=\$D9
RDUL	=\$232C	RED	=\$22	REPSPA	=\$2F00	RESUM	=\$B0
REVDIR	=\$2C87	REVVID	=\$2882	RIGHT	=\$271E	RIGHTD	=\$02
RIGHTI	=\$08	RMV1	=\$2DC4	RMV2	=\$2DCD	RMV99	=\$2DF8
RNDOWN	=\$21F1	RNDLFT	=\$224F	RNDRT	=\$2235	RNDUP	=\$2223
ROUND	=\$81	RUDL	=\$2338	SAM1	=\$27AE	SAME	=\$286F
SAME1	=\$21C7	SAMEBD	=\$27C3	SB25	=\$24A3	SB7	=\$2478
SB70	=\$2485	SB88	=\$24A0	SCORHI	=\$B3	SCORLO	=\$B2
SCRCOL	=\$00	SEARCH	=\$22CD	SEL2	=\$27FD	SELECT	=\$30
SETTIM	=\$2459	SETTRK	=\$2581	SITBRK	=\$2462	SOMLFT	=\$206F
SONG	=\$2D2C	SONG1	=\$00	SONG2	=\$31	SONG3	=\$51
SOUND	=\$2D3D	SPDTBL	=\$2F95	STFALL	=\$2367	SWIADF	=\$40
SWIBDF	=\$B0	SWICOL	=\$0B	SWIRES	=\$01	SWISEL	=\$02
SWIT	=\$27CC	SWITCH	=\$0282	TEMP1	=\$EF	TEMP10	=\$F8
TEMP11	=\$EC	TEMP12	=\$ED	TEMP13	=\$EE	TEMP14	=\$EA
TEMP15	=\$EB	TEMP2	=\$F0	TEMP3	=\$F1	TEMP4	=\$F2
TEMP5	=\$F3	TEMP6	=\$F4	TEMP7	=\$F5	TEMP8	=\$F6

TEMP9	=\$F7	?	THEEND	=\$24D7	TIME64	=\$0296	TIMER	=\$0284
TOP2	=\$3012		TOPSW	=\$20C0	TOPTIM	=\$E3	TPACK	=\$50
ULFD	=\$232A		UP	=\$273C	UPALPH	=\$24FE	UPD	=\$00
UP1	=\$00		URLD	=\$2324	V1C	=\$2F15	V2C24S	=\$2F17
V2C56S	=\$2F17		V2C8S	=\$2F17	V3C24S	=\$2F21	V3C8S	=\$2F1B
VCH6	=\$293E		VCH61	=\$293C	VCHK	=\$290F	? VERT99	=\$2949
VTEST	=\$2427		W44	=\$2588	W45	=\$2594	W46	=\$25D7
W47	=\$25B8	?	WAIT2	=\$2518	WAIT3	=\$254C	WAIT4	=\$2575
WAIT5	=\$25E7		WAIT6	=\$25FF	WAIT7	=\$2603	? WHITE	=\$0E
XTRADO	=\$70	?	YELLOW	=\$28				

Symbol table - numerical order:

ATSYNC	=\$00		BLACK	=\$00	?	SCRCOL	=\$00	?	UPI	=\$00
UPD	=\$00		DEADSND	=\$00		SONG1	=\$00		ATBLNK	=\$01
SWIRES	=\$01		DOWND	=\$01		ATWAIT	=\$02		SWISEL	=\$02
RIGHTD	=\$02		LEFTD	=\$03	?	ATACTL	=\$04	?	DOWNI	=\$04
? ATBCTL	=\$05	?	ATACOL	=\$06	?	ATBCOL	=\$07	?	ATFCOL	=\$08
SWICOL	=\$08	?	RIGHT1	=\$08		BEEP	=\$08		ATSCOL	=\$09
ATFCTL	=\$0A		LEFT1	=\$0C	?	WHITE	=\$0E		BOOF	=\$0E
? ATSALA	=\$10		JOYAPF	=\$10		PLAY	=\$10	?	ATSBLA	=\$11
? BROWN	=\$12		BELLS	=\$14	?	GOLD	=\$16	?	ATADAT	=\$1B
? ATBDAT	=\$1C		CHER1	=\$1C		JOYADN	=\$20		DODEAD	=\$20
? RED	=\$22	?	YELLOW	=\$28	?	ORANGE	=\$28		CHER2	=\$29
? ATMVIN	=\$2A	?	ATREMV	=\$2B		SELECT	=\$30		SONG2	=\$31
? GREEN	=\$34		CHER3	=\$36		ATJBA	=\$3C		JOYALT	=\$40
? SWIADF	=\$40		GAMOVR	=\$40		CHER4	=\$43		TRACK	=\$50
CHER5	=\$50		SONG3	=\$51		CHER6	=\$5D	?	PURPLE	=\$68
XTRADO	=\$70		JOYART	=\$80	?	SWIBDF	=\$80		GAME	=\$80
RESUM	=\$80		ROUND	=\$81		SCORLO	=\$82		SCORH1	=\$83
FRAMEL	=\$84		FRAMEH	=\$85		AIDX	=\$86		BIDX	=\$87
ADUR	=\$88		BDUR	=\$89		DIGINV	=\$8A		ALPHA	=\$8B
CHERRYT	=\$8C		APFALL	=\$8D		ANIM8	=\$8E		FCOLOR	=\$8F
CHERRYC	=\$90	?	LBLUE	=\$96		FR1L	=\$98		FR2L	=\$A0
FR2R	=\$A8		BOTTIM	=\$AC		FR1R	=\$E0		TOPTIM	=\$B3
? BLUE	=\$B6		LASTJY	=\$B8		MISLN	=\$B9		MSBAND	=\$BA
MISPOF	=\$BD		MISDIR	=\$BC	?	MIDTIM	=\$BC		DOBAND	=\$BD
DIGBAND	=\$BE		DOPOF	=\$C0		DIGPOF	=\$C1	?	DODAT	=\$C3
DIGDAT	=\$C4		DIGDIR	=\$C6		DIGSPD	=\$C8		DIGTIM	=\$CA
DIGIO	=\$CC	?	MUX	=\$CE		APBAND	=\$D0		APPOF	=\$D4
PWRTIM	=\$D8		RANDOM	=\$D9		MODE	=\$DA		DOINV	=\$DB
? PTR	=\$DC	?	BAND	=\$DD	?	LODATA	=\$DE	?	ADAT	=\$E5
? HIDATA	=\$E6	?	APOF	=\$E7	?	TEMP14	=\$EA	?	TEMP15	=\$EB
? TEMP11	=\$EC	?	TEMP12	=\$ED	?	TEMP13	=\$EE	?	LODATB	=\$EF
TEMP1	=\$EF		TEMP2	=\$F0		TEMP3	=\$F1		TEMP4	=\$F2
? PD100K	=\$F2		TEMP5	=\$F3		TEMP6	=\$F4	?	PD10K	=\$F4
TEMP7	=\$F5	?	BDAT	=\$F6		TEMP8	=\$F6	?	PD1K	=\$F6
? HIDATB	=\$F7		TEMP9	=\$F7	?	BPOF	=\$F8		TEMP10	=\$F8
? PD100	=\$F8	?	PD10	=\$FA	?	PD1	=\$FC		JOYDAT	=\$0280
SWITCH	=\$0282		TIMER	=\$0284		TIME64	=\$0296		BEGORG	=\$2000
TOPSW	=\$2000		PWRUP	=\$2012		CLRAM	=\$2017		BOTVI	=\$202E
PMODE	=\$203E		EATTST	=\$2052		ALGONE	=\$2059		NEWNRD	=\$205F
SOMLFT	=\$206F		HIT2	=\$2079		NXTTRY	=\$2092		INCINV	=\$2098
I15	=\$209E		I19	=\$20A4		MDGHIT	=\$20A5	?	NOMORE	=\$20A9
NOHIT	=\$20C0		FLDDUT	=\$20C9		FMAP2	=\$20DB		DRA6TB	=\$20E2
MVCHK	=\$20E4		NMOV	=\$20EA		MVC1	=\$20ED		KEEPMV	=\$210D
MVU2	=\$211E		MVU3	=\$2126		ENDMV	=\$2136		KMS	=\$2139
MVD2	=\$2147		KM7	=\$215E	?	KMLFT	=\$2162		KML2	=\$216D
KMRT	=\$2184		KMRT2	=\$2190		EMV	=\$21A5		NEWMOV	=\$21AB
ABORT	=\$21C0		SAME1	=\$21C7		NM1	=\$21D2		NM2	=\$21D9
NM3	=\$21E0		NEWDIR	=\$21E3		RNDDWN	=\$21F1		BELOW0	=\$21FC
BELOW1	=\$2201		BL0L	=\$220F		DIR25	=\$221B		RNDUP	=\$2223
ABOVE0	=\$222D		ABOVE1	=\$2230		RNDRT	=\$2235		ABOVE3	=\$2240
ABOVE2	=\$2247		ABVL	=\$224C		RNDLFT	=\$224F		ABOVE6	=\$225A
ABOVE7	=\$2261		HAYDIR	=\$2263		MDRT	=\$2268		MDRT2	=\$2278

MORT4	=\$2281	MDLT	=\$2285	MDDN	=\$229B	MDUP	=\$22B1
NOGDD	=\$22C7	SEARCH	=\$22CD	MDLTJP	=\$22E1	DIDMOV	=\$22E4
NG99	=\$22F4	HORV	=\$22F7	NOBOR	=\$2305	NOBOR2	=\$2321
DIRTBL	=\$2324	URLD	=\$2324	LDUR	=\$2326	ULRD	=\$232A
RDUL	=\$232C	DRLU	=\$2330	LUDR	=\$2332	DLRU	=\$2336
RUDL	=\$2338	ENDBOT	=\$233C	APPLE	=\$233C	NF5	=\$2339
NF9	=\$2364	STFALL	=\$2367	FALLMON	=\$237B	FO3	=\$238E
F44	=\$2398	F47	=\$23AA	F55	=\$23B1	AFRMV	=\$23B9
F57	=\$23C8	MJDAIR	=\$23CD	MID5	=\$23D6	MID15	=\$23E5
DRAGT	=\$23F3	NYET	=\$240A	APLEFT	=\$2419	APRITE	=\$2421
VTEST	=\$2427	DRAGEM	=\$2441	DRAGIT	=\$244C	NXTTST	=\$2453
SETTIM	=\$2459	SITBRK	=\$2462	SB7	=\$2478	SB70	=\$2485
SB88	=\$24A0	SB25	=\$24A3	BRKIT	=\$24BC	ORGTBL	=\$24C6
DMASK	=\$24CA	ADD1K	=\$24CD	FALL99	=\$24D7	THEEND	=\$24D7
ENDTIM	=\$24D7	UPALPH	=\$24FB	ALF99	=\$2506	EAT5	=\$2516
NOTIM	=\$2518	WAIT2	=\$251B	D10N	=\$2537	WAIT3	=\$254C
NOXTRA	=\$2568	WAIT4	=\$2575	SETTRK	=\$2581	W44	=\$2588
W45	=\$2594	W47	=\$25B8	GOVER	=\$25BC	W46	=\$25D7
WAIT5	=\$25E7	WAIT6	=\$25FF	WAIT7	=\$2603	NOX	=\$261D
EVO	=\$2627	EVOCHK	=\$2633	EVO2	=\$2635	EVO5	=\$264C
EVO7	=\$2658	DTIM9	=\$2667	EVO8S	=\$2669	EVO99	=\$266C
NOTDIG	=\$2684	CTIME	=\$26BC	NOCHER	=\$26B4	NJOY	=\$26B8
JOYRD	=\$26BB	JOY1	=\$26E5	ILL1	=\$26FD	CHKHRZ	=\$2700
LEFT	=\$270F	RIGHT	=\$271E	DOWN	=\$272D	UP	=\$273C
ILLEG	=\$2749	JOY98	=\$2763	JOY99	=\$2765	BUTTON	=\$2765
BUT4	=\$2779	BUT5	=\$277F	SAM1	=\$27AE	BLOW1	=\$27B3
FTST	=\$2788	SAMEBD	=\$27C3	NOBUT	=\$27CC	SWIT	=\$27CC
NORES	=\$27D8	SEL2	=\$27FD	NOSEL	=\$2805	BLKWHT	=\$281E
PWRLN	=\$281D	PWROFF	=\$2821	PWRDIR	=\$2825	FLDCOL	=\$2829
ENDJOY	=\$2839	NOFWR	=\$2849	PWRDEC	=\$284C	AVAIL	=\$2850
PWR2	=\$2855	SAME	=\$286F	RP2	=\$2883	RP3	=\$2885
PWRO	=\$288A	CATCH	=\$289A	PWR3	=\$28A1	PWR55	=\$28A3
PWR66	=\$28AE	PWR84	=\$28C2	PWR86	=\$28D5	PWRMOV	=\$28DA
FRIGHT	=\$28E6	HCHG	=\$2901	HOR99	=\$290C	VCHK	=\$290F
FUR4	=\$2920	VCHG1	=\$293C	VCHG	=\$293E	VERT99	=\$2949
PDOWN	=\$294C	PWF0F	=\$296B	FWLN	=\$296F	PTIME	=\$297F
PWR99	=\$2984	IGAME	=\$2987	ROUND	=\$29A7	TRND	=\$29E7
APPLE1	=\$2A0F	APPLE2	=\$2A1C	APPLE3	=\$2A29	APPLE4	=\$2A36
DSPD	=\$2A70	DSPD2	=\$2A79	CHIT	=\$2A7F	CH1	=\$2A8A
CH2	=\$2A93	CHERE	=\$2AAA	CH25	=\$2AC7	CH50	=\$2ADB
CH75	=\$2AF1	CH80	=\$2AFD	NOCH	=\$2B15	CNOTE	=\$2B17
CHRTS	=\$2B1D	ADDPTS	=\$2B23	ADD44	=\$2B4B	ADD55	=\$2B52
NOCHG	=\$2B7F	REVVID	=\$2B82	ALFT5	=\$2B97	HAVIT	=\$2B9E
ALFRET	=\$2BA9	MONSTR	=\$2BAA	MDOWN	=\$2BAF	MVD25	=\$2BBA
MVD50	=\$2BCE	MVD52	=\$2BE9	MVD55	=\$2BF1	MVD56	=\$2BF3
NOMOV	=\$2BF5	MUP	=\$2BF7	MVU50	=\$2C07	MVU52	=\$2C28
MVU53	=\$2C2E	MVU55	=\$2C34	MRIGHT	=\$2C3D	OSIDE	=\$2C6F
MVITRA	=\$2C7A	MVITR	=\$2C83	REVD1R	=\$2C87	DUP	=\$2CA0
NOMVH	=\$2CA4	MLEFT	=\$2CA6	OSIDE2	=\$2CD4	MVITLA	=\$2CE2
MVITL	=\$2CEB	APPUSH	=\$2CEF	APP2	=\$2CFC	APP9	=\$2D11
APP99	=\$2D18	APTEST	=\$2D1C	APT1	=\$2D1E	APT9	=\$2D28
SONG	=\$2D2C	LOSND	=\$2D37	SOUND	=\$2D3D	HISND	=\$2D41
NOSND	=\$2D48	FMTEST	=\$2D4E	CCTST	=\$2D79	CCTEST	=\$2D89
CCT1	=\$2D8D	DIGING	=\$2DAF	FMRMV	=\$2DB6	RMV1	=\$2DC4
RMV2	=\$2DCD	RMV99	=\$2DF8	LSR4Y	=\$2DFB	FR2R2	=\$2E07
FR2L1	=\$2E0E	FR2L8	=\$2E15	FR2R3	=\$2E19	FR2R1	=\$2E1D
FR2R6	=\$2E1D	FR1R4	=\$2E20	FR1L4	=\$2E21	FR2R7	=\$2E21
FR1L3	=\$2E24	FR1L1	=\$2E25	FR1L6	=\$2E25	FR2R3	=\$2E26
FR1L5	=\$2E26	FR2R4	=\$2E29	FR1L8	=\$2E2A	FR1R2	=\$2E32
FR1L2	=\$2E36	FR1R5	=\$2E3E	FR1R8	=\$2E42	FR1R1	=\$2E46
FR1L7	=\$2E4E	FR1R7	=\$2E4F	FR2L3	=\$2E52	FR2L2	=\$2E53
FR2L4	=\$2E57	FR2L6	=\$2E5B	FR2L7	=\$2E5F	FR2R5	=\$2E63
FR1R3	=\$2E64	FR2L5	=\$2E6C	FR1R6	=\$2E74	FMASK	=\$2E7C
FBANK	=\$2E9C	F1LADR	=\$2EA0	F2LADR	=\$2EA8	F2RADR	=\$2EB0
F1RADR	=\$2EB8	AP1POF	=\$2EC0	AP1POS	=\$2EC8	AP2PCF	=\$2EDC
AP2POS	=\$2ED8	AP3POF	=\$2EE0	AP3POS	=\$2EE8	AP4POF	=\$2EF0

AP4P0S	=\$2EF8	REPSA	=\$2F00	HITBL	=\$2F0E	V1C	=\$2F15
V2C8S	=\$2F17	V2C24S	=\$2F17	V2C56S	=\$2F17	V3C8S	=\$2F1B
V3C24S	=\$2F21	CCTLAD	=\$2F27	CCTL1	=\$2F2F	CCTL5	=\$2F35
CCTL2	=\$2F3D	CCTL3	=\$2F45	CCTL4	=\$2F4D	CCTL6	=\$2F55
CCTL7	=\$2F5D	CCTL8	=\$2F65	IQTBL	=\$2F6D	DTIME	=\$2F6D
DDUR	=\$2F81	SFDTBL	=\$2F95	PWRHIT	=\$2FA9	PH55	=\$2F0B
PVHIT	=\$2FD5	NOHITP	=\$2FE6	CCMASK	=\$2FE8	END	=\$2FFE
TOP2	=\$3012	BEGOBJ	=\$8004				

```

1 */MR.DO.BANK2 (PAL)LAST EDIT:9/14/83
2
3 *****
4 * FINAL LISTING FOR ATARI VCS "MR. DO!"
5 * PAL VERSION.... 9/12/83
6 * BY ED ENGLISH OF INDIVIDEO,INC.
7 *****
8
9 * 2ND 4K BANK OF MR.DO! ->
10 * THIS IS THE MAIN FILE FOR BANK2 OF MR. DO!
11 *****
12     PAG
13     LST ON
14 *****
15 * ATARI 2600 EQUATE FILE      *
16 *****
17     PUT MR.DO.VCSDEF
18     PAG
19 *****
20 * RAM DEFINITION & EQUATES    *
21 *****
22     PUT MR.DO.EQU
23 BOTVI    =    $202E
24         ORG    $2FFC
25                               :MICE VECTORS.
26     DA    $3000
27     DA    END
28     PAG
29 *****
30 * TOP VERTICAL INTERVAL      *
31 *****
32     PUT MR.DO.TOPVI
33     PAG
34 *****
35 * TITLE SCREEN PAINTING FILE *
36 *****
37     PUT MR.DO.TITLE
38     PAG
39 *****
40 * ORCHARD SCREEN SETUP FILE  *
41 *****
42     PUT MR.DO.DISPLAY
43     PAG
44 *****
45 * SOUND & MUSIC CONTROL FILE  *
46 *****
47     PUT MR.DO.MUSIC
48     PAG
49 *****
50 * POSITION LATCH VALUES FILE  *
51 *****
52     PUT POSITION.TABLE
53     PAG
54 *****
55 * SOUND & MUSIC TABLES      *
56 *****
57     PUT MR.DO.SND TABLES
58     PAG
59     OBJ    $8894
60     ORG    $3890
61 *****
62 * DIGIT DATA FILE          *

```



```

83 *****
64 PUT MR.DO.DIGITS
65 PAG
66 OBJ $8904
67 ORG $3900
68 *****
69 * SPRITE B IMAGE DATA FILE *
70 *****
71 PUT MR.DO.SPRITEB IMAGES
72 PAG
73 *****
74 * ADDRESS PTRS FOR WORDS *
75 *****
76 PUT MR.DO.ADDRESS PTRS
77 PAG
78 OBJ $8A04
79 ORG $3A00
80 *****
81 * SPRITE A IMAGES (PAGE 1) *
82 *****
83 PUT MR.DO.SA IMG1
84 PAG
85 OBJ $8B04
86 ORG $3B00
87 *****
88 * SPRITE A IMAGES (PAGE 2) *
89 *****
90 PUT MR.DO.SA IMG2
91 PAG
92 OBJ $8C04
93 ORG $3C00
94 *****
95 * LETTER IMAGE TABLES *
96 *****
97 PUT MR.DO.LETTER TABLES
98 PAG
99 OBJ $8CF8
100 ORG $3CF4
101 *****
102 * ORCHARD SCREEN PAINT FILE *
103 *****
104 PUT MR.DO.ORCHARD
105 PAG
106 *****
107 * DISPLAY RTN FOR 6 SPRITES *
108 *****
109 PUT MR.DO.SCORE RTN
110 PAG
111 OBJ $9000
112 ORG $3FFC
113 DA INITSW
114 END

```

:ASM

```
1  */MR.DO.BANK2 (PAL)LAST EDIT:9/14/83
2  ;
3  *****
4  * FINAL LISTING FOR ATARI VCS "MR. DO!"
5  * PAL VERSION.... 9/12/83
6  * BY ED ENGLISH OF INDIVIDEO, INC.
7  *****
8  ;
9  * 2ND 4K BANK OF MR.DO! ->
10 * THIS IS THE MAIN FILE FOR BANK2 OF MR. DO!
11 *****
```

```

14 *****
15 * ATARI 2600 EQUATE FILE *
16 *****
17 PUT MR.DO.VCSDEF
>1 *FILE: VCSDEF (ATDEF W/LESS COMMENTS).
>2 *ATARI VCS VIDEO REGS + 6532 RIOT
>3 *****
>4 ;
>5 ATSYNC = $00 ;B1=1 BRINGS GUN HOME.
>6 ATBLNK = $01 ;B1=1 TURN GUN OFF.
>7 ATWAIT = $02 ;STOP 6507 UNTIL END OF LINE.
>8 ATHORC = $03 ;RESET HORIZONTAL COUNTER.
>9 ATACTL = $04 ;SPRITE/MISSILE A CONTROL
>10 ATBCTL = $05 ;SAME AS ATACTL FOR SPRITE B.
>11 ATACOL = $06 ;SPRITE/MISSILE A COLOR.
>12 ATBCOL = $07 ;COLOR SPRITE B
>13 ATFCOL = $08 ;FIELD COLOR
>14 ATSCOL = $09 ;SCREEN COLOR
>15 ATFCTL = $0A ;FIELD DATA/MISSILE CONTROL
>16 ATRFO = $0D ;B4-7: FIELD REG 0
>17 ATRF1 = $0E ;B0-7:FIELD REG 1
>18 ATRF2 = $0F ;B0-7:FIELD REG 2
>19 ATSALA = $10 ;SPRITE A HORIZ LATCH.
>20 ATSBLA = $11
>21 ATAWAV = $15 ;CHANNEL A WAVEFORM (B0-B3).
>22 ATBWAV = $16 ;CHANNEL B WAVEFORM.
>23 ATADIV = $17 ;CHANNEL A FREQ DIVISOR (B0-B4).
>24 ATBDIV = $18 ;CHANNEL B FREQ DIVISOR.
>25 ATAVOL = $19 ;CHANNEL A VOLUME.(B0-B3).
>26 ATEVOL = $1A ;CHANNEL B VOLUME.
>27 ATADAT = $1B ;SPRITE A DATA.
>28 ATSDAT = $1C ;SPRITE B DATA
>29 ATENMA = $1D ;B1=1 MIS A ENABLED IF ATMATK=0.
>30 ATENMB = $1E ;MIS. B ENABLE.
>31 ATENFM = $1F ;B1= FIELD MIS ENABLE.
>32 ATSAIN = $20 ;SPRITE A HORIZ INCREMENT (B4-B7).
>33 ATSBIN = $21
>34 ATASEL = $25 ;SA FONT SELECT.
>35 ATBSEL = $26 ;SB SELECT.
>36 ATFSEL = $27 ;FIELD MIS. ENABLE SELECT.
>37 ATMVIN = $2A ;ADDS INCR. TO SPRITE & MISSILE POS
ITIONS.
>38 ATREMV = $2B ;RESET ALL 5 INCREMENT REGS.
>39 ATJBA = $30 ;JOY BUTTON A.
>40 ATJBB = $3D ;JOY BUTTON B.
>41 JOYDAT = $280 ;JOYSTICKDATA (PORT A).ALSO PADDLE
BUTTONS.
>42 ;0=CLOSED 1=OPEN
>43 * JOYDAT BITMASKS-->
>44 *-----
>45 JOYBUP = $01 ;PLAYER BJOYSTICK UP
>46 JOYBDN = $02 ;B DOWN
>47 JOYBLT = $04 ;B LEFT
>48 JOYBRT = $08 ;B RIGHT
>49 JOYAUP = $10 ;A UP
>50 JOYADN = $20 ;A DOWN
>51 JOYALT = $40 ;A LEFT
>52 JOYART = $80 ;A RIGHT
>53 ;
>54 ;
>55 IOADIR = $281 ;PORT A DIRECTION REG.
>56 ;FOR EACH BIT, 1=OUTPUT, 0=INPUT.
>57 ;
>58 SWITCH = $282 ;PANEL SWITCHES (PORT B).
>59 * BIT MASKS FOR SWITCH-->

```

>60	*-----*		
>61	SWIRES	=	\$01 :GAME RESET
>62	SWISEL	=	\$02 :GAME SELECT
>63	SWICOL	=	\$08 :TV TYPE(0=BW, 1=CCL)
>64	SWIADF	=	\$40 :PLAYER A DIFFICULTY
>65	SWIBDF	=	\$80 : B
>66			:
>67	IOBDIR	=	\$283 :PORT B DIRECTION REG.
>68			:
>69	* 6552 READ-ONLY REGS		
>70	*-----*		
>71	TIMER	=	\$284 :TIMER
>72	TIME64	=	\$296 :TIMER/64.

```

19 *****
20 * RAM DEFINITION & EQUATES *
21 *****
22 PUT MR.DO.EQU
>1 */MR.DO.EQU (PAL) LAST EDIT:9/15/83
>2 *****
>3 *
>4 * ***** * * * *
>5 * * * * * * * *
>6 * ***** * * * *
>7 * * * * * * * *
>8 * * * * * * * *
>9 * * * * * * * *
>10 *
>11 *****
>12 * GAME CONTROL RAM *
>13 *-----*
>14 GAME = $80 ;B0-B3 = GAME NUM.
>15 ROUND = $81 ;B0-B3 = ROUND NUM.
>16 ;
>17 *****
>18 * SCORE DATA *
>19 *-----*
>20 SCORLO = $82 ;LO 2 SCORE DIGITS.
>21 SCORHI = $83 ;HI 2 SCORE DIGITS.
>22 ;
>23 FRAMEL = $84 ;FRAME COUNT LO.
>24 FRAMEH = $85 ;FRAME COUNT HI.
>25 ;
>26 *****
>27 * SOUND DATA *
>28 *-----*
>29 AIDX = $86 ;IDX TO CH A SOUND.
>30 BIDX = $87 ;IDX TO CH B SOUND.
>31 ADUR = $88 ;DURATION OF CH A SOUND.
>32 ;ZERO = GET NEXT NOTE.
>33 ;MINUS = NO SOUND ON.
>34 BDUR = $89 ;DURATION OF CH B SOUND.
>35 ;
>36 *****
>37 * MISC. STATUS BYTES-- *
>38 *****
>39 DIGINV = $8A ;NUM DIGGERS LEFT.
>40 ALPHA = $8B ;ALPHA MONSTER STATUS.
>41 ;B0-B2=IDX FOR CHANNEL SELECT.
>42 ;B3-B7=LETTER GOTTEN FLAGS.
>43 CHERRYT = $8C ;CHERRY TIMER/NOTE PTR.
>44 ;B0-B4=TIMER SINCE LAST CHERRY EAT
EN.
>45 ; (0=TIMER EXPIRED).
>46 ;B5-B7=NOTE IDX FOR NEXT CHERRY EA
TEN SOUND.
>47 ;
>48 APFALL = $8D ;APPLE FALLING IDX.
>49 ;B7=1=NO APPLE FALLING.
>50 ;B4-B6=WHICH APPLE IS FALLING.
>51 ;B0-B3=STAGE TIMER.
>52 ANIME = $8E ;ANIMATION FLAGS.
>53 ;B7=MR DO BEING DRAGGED.
>54 ;B6=DIG1 BEING DRAGGED.
>55 ;B5=DIG2 BEING DRAGGED.
>56 ;B1=ALF MONSTER OUT.
>57 ;B0=MR DO IMG.FLIP/FLOP.
>58 FCOLOR = $8F ;FIELD (ORCHARD) COLOR.
>59 *****

```

G).

```

*-----CHERRY DATA-----*
>61 *-----*
>62 :8 BYTES ($90-$97).
>63 CHERRYC = $90 :CHERRY CONTROLS FOR 8 BANDS.
>64 :B0-B2 = CONTROL VALUE (REP/SPACIN
:
>65 :B3-B6 = IDX TO CPOF TABLE.
>66 :B7 = NO CHERRY/SOME CHERRY FLAG.
>67 ;
>68 *****
>69 * ASYM FIELD DATA *
>70 *-----*
>71 :32 BYTES ($98-$B7).
>72 FR1L = $98 :8 BANDS OF FR1 LEFT DATA.
>73 FR2L = $A0 :8 BANDS OF FR2 LEFT DATA.
>74 FR2R = $A8 :8 BANDS OF FR1 RIGHT DATA.
>75 FR1R = $B0 :8 BANDS OF FR2 RIGHT DATA.
>76 ;
>77 LASTJY = $B6 :LAST LEGAL JOY (MR.DO. DIR).
>78 ;
>79 *****
>80 * MISSILE DATA *
>81 *-----*
>82 MISLN = $B9 :MIS LINENUM.
>83 MSBAND = $BA :MIS VERT POS.
>84 :B0-B3 = LN OFFSET.
>85 :B4-B6 = BAND NUM.
>86 :B7 = ON/OFF FLAG.
>87 ;
>88 MISPOF = $BB :MIS HORIZ POS.
>89 :B0-B6 = IDX TO POSTBL.
>90 :B7 = MIS AVAILABLE FLAG.
>91 ;
>92 MISDIR = $BC :MIS DIRECTION.
>93 :B0-B1 = MIS DIRECTION.
>94 :ALSO DOUBLES AS TIME
>95 :BEFORE PWRBALL AVAIL AGAIN.
>96 ;
>97 ;
>98 *****
>99 * MR.DO & DIGGER DATA *
>100 *-----*
>101 DOBAND = $BD
>102 DIGBAND = $BE :DIG VERT POS.
>103 :B0-B3 = LN OFFSET.
>104 :B4-B6 = BAND NUM.
>105 :B7= ON/OFF FLAG.
>106 ;
>107 DOPOF = $C0
>108 DIGPOF = $C1 :DIG HORIZ POS.
>109 :B0-B6 = IDX TO POSTBL.
>110 ;
>111 DODAT = $C3
>112 DIGDAT = $C4 :DIG DATA PTR.
>113 ;
>114 DIGDIR = $C6 :DIG CONTROL.
>115 :B0-B1 = DIRECTION.
>116 :B7 = DIGGING FLAG.
>117 DIGSPD = $C8 :DIG SPEED.
>118 : (IDX TO SPDTBL)
>119 :B0= UP SPEED.
>120 :B1= DOWN SPEED.
>121 :B2= LEFT SPEED.
>122 :B3= RIGHT SPEED.
>123 ;
>124 DIGTIM = $CA :DIG STAGE TIMER.

```



```

>125 DIG10 = $00 ;DIG INTELLIGENCE.
>126 ;BO-B2=HOW MANY CELLS TO GO
>127 ;BEFORE TRYING NEW DIR.
>128 MUX = $0E ;NUM0 TO 2 FOR MUX MGR.
>129 ;
>130 ;
>131 *****
>132 * APPLE RAM *
>133 *****
>134 ;8 BYTES ($D0-$D7).
>135 APBAND = $D0 ;APPLE POS.
>136 ;B0-B3 = IMG TBL IDX.
>137 ;B4-B6 = BAND NUM.
>138 ;B7 = ON/GONE FLAG.
>139 ;
>140 APPOF = $D4 ;APPLE HORIZ POS.
>141 ;B0-B6 = IDX TO POSTBL.
>142 ;B7 = FALLING FLAG.
>143 FWRTIM = $D8 ;IDX TO PTIME FOR WHEN BALL AVAIL

>144 MODE = $DA ;GAME MODE.
>145 RANDOM = $D9 ;FREE RUNNING RANDOM #.
>146 DOINV = $DB ;NUM MR DO'S LEFT.
>147 ;
>148 *****
>149 * TEMPORARY (SHARED) RAM *
>150 *-----
>151 ;36 BYTES ($DC-$FF).
>152 ;
>153 * RAM USED TO PAINT PLAYFIELD-
>154 *****
>155 PTF = $DC ;SA IMG PAGE FLAGS FOR 3 BANDS.
>156 ;
>157 BAND = $DD ;BAND NUM
>158 ;
>159 * SPRITE A (DIG,APPLE) DISPLAY RAM
>160 * ($DE-$EE)
>161 *****
>162 LODATA = $DE ;LO ADDR SA (8 BANDS).
>163 ADAT = $E5 ;LO ADDR FOR SA INDIRECT.
>164 HIDATA = $E6 ;HI DATA ADDR FOR SA.
>165 ;$E7-$EE-
>166 APOF = $E7 ;SA POFs.
>167 ;
>168 * SPRITE B (MR DO,CHERRY) DISPLAY RAM
>169 * ($EF-$FF)
>170 *****
>171 LODATB = $EF ;LO ADDR SB (8 BANDS).
>172 BDAT = $F6 ;LO ADDR FOR SB INDIRECT.
>173 HIDATB = $F7 ;HI DATA ADDR FOR SB.
>174 ;$F8-$FF-
>175 ;*****
>176 BPOF = $F8 ;SB POF VALUES FOR 8 BANDS.
>177 ;
>178 ;
>179 * TEMP VERTICAL INTERVAL RAM
>180 *-----
>181 TEMP14 = $EA
>182 TEMP15 = $EB
>183 TEMP11 = $EC
>184 TEMP12 = $ED
>185 TEMP13 = $EE
>186 TEMP1 = $EF
>187 TEMP2 = $F0
>188 TEMP3 = $F1
>189 TEMP4 = $F2

```

AGAIN.

```

>187 TEMP4 = $F2
>190 TEMP5 = $F3
>191 TEMP6 = $F4
>192 TEMP7 = $F5
>193 TEMP8 = $F6
>194 TEMP9 = $F7
>195 TEMP10 = $F8
>196
>197 ;
>197 * RAM FOR DISPLAYING 6 SPRITES->
>198 * NOTE-THIS RAM PLUS TEMP1,2,3 DOES
>199 * NOT CONFLICT WITH SA DISPLAY RAM.
>200 *****
>201 PD100K = $F2
>202 PD10K = $F4
>203 PD1K = $F6
>204 PD100 = $F8
>205 PD10 = $FA
>206 PD1 = $FC
>207 ;

```

```

>209 *****
>210 *
>211 * *****
>212 * * * * *
>213 * * * * *
>214 * * * * *
>215 * * * * *
>216 * *****
>217 *
>218 *****
>219 * COLOR EQUATES *
>220 *-----*
>221 ;
>222 BLACK = 0
>223 WHITE = $0E
>224 RED = $22
>225 YELLOW = $28
>226 GREEN = $34
>227 ORANGE = $28
>228 BLUE = $86
>229 PURPLE = $68
>230 BROWN = $12
>231 GOLD = $16
>232 LBLUE = $96
>233 ;
>234 SCRCOL = BLACK ;BKGD COLOR OF ORCHARDS.
>235 ;
>236 *****
>237 * DIRECTION EQUATES --> *
>238 *-----*
>239 * STARTING IDX5 FOR EACH DIR IN DIRTAB-->
>240 UPI = 0
>241 DOWNI = 4
>242 RIGHTI = 8
>243 LEFTI = 12
>244 ;
>245 * DIRECTION VALUES-->
>246 UPD = 0
>247 DOWND = 1
>248 RIGHTD = 2
>249 LEFTD = 3
>250 ;
>251 *****
>252 * GAME MODES--> *
>253 *****
>254 RESUM = $80 ;RESUME PLAY MODE(1 SEC BLACK).
>255 XTRADO = $70 ;EXTRA MR.DO.WON.
>256 TRACK = $50 ;ALT CPMD+ ORCH.
>257 GAMOVR = $40
>258 SELECT = $30 ;SELECT MODE.
>259 DODEAD = $20
>260 PLAY = $10
>261 ;
>262 *****
>263 * VERT INTERVAL TIMER EQUATES *
>264 *-----*
>265 * TOTAL PICTIME (TITLE & ORCH)=178 LINES.
>266 ;44 LINES.
>267 TOTPTIM = $A9+10 ;TOTPTI TIMER VALUE.
>268 ;51 LINES.
>269 MIDTIM = $AD+15 ;TIME TO PAINT SCORE,EXTRA + SET F
>270 ;39 LINES.
>271 BOTTIM = $9F+17 ;BOTVI TIMER VALUE.
>272 *-----*

```

/273

;312 LINES.

23	BOTVI	=	\$202E
24		ORG	\$2FFC
25			
26		DA	\$3000
27		DA	END

;MICE VECTORS.

2FFC: 00 30
2FFE: FE 3F

```

29 *****
30 * TOP VERTICAL INTERVAL *
31 *****
32 PUT MR.DO.TOPVI
>1 */MR.DO.TOPVI LASTED: 9/14/83
>2 *
>3 *****
>4 *APPLES GET 1/3 FRAMES IF 2 DIGS
>5 *ON ,ELSE 1/2 FRAMES IF 1 DIG ON.
>6 *****
>7 * BANK SWITCH FROM BOTVI-->
>8 *-----
3000: EA >9 NOP
3001: EA >10 NOP
3002: EA >11 NOP
3003: 4C 12 30 >12 JMP TOP2 ;CONT W/TOPVI.
3006: EA >13 NOP
>14 * BANK SWITCH TO BOTVI-->
>15 *-----
>16 BVISW
3007: AD F8 FF >17 LDA $FFFF8
300A: 4C 2E 20 >18 JMP BOTVI
300D: EA >19 NOP
>20 * SWITCH TO BANK 1 INIT RTN-->
>21 *-----
>22 INITSW
300E: EA >23 NOP
300F: AD F8 FF >24 LDA $FFFF8
>25

```

		>27	TOP2		
3012:	EA	>28		NOP	
3013:	20 2B 35	>29		JSR MUSIC	; MAINTAIN SOUNDS.
		>30			
		>31		* KEEP A NUM 0,1,2 FOR MUX MGMT.	
		>32		*****	
3016:	A6 CE	>33		LDX MUX	
3018:	E8	>34		INX	
3019:	E0 03	>35		CPX #3	
301B:	D0 02	>36		BNE OK2	; ONLY 0,1,2.
301D:	A2 00	>37		LDX #0	
		>38	OK2		
301F:	86 CE	>39		STX MUX	
		>40			
		>41			
		>42		* ANIMATION CHECKPOINT-->	*
		>43		*****	
3021:	A5 84	>44		LDA FRAMEL	
3023:	29 0F	>45		AND #\$0F	
3025:	C9 0F	>46		CMP #\$0F	
3027:	D0 2B	>47		BNE ANIM9	; J NT TIME TO ANIMATE.
		>48		* ANIMATE BOTH DIGGERS-->	
		>49		*****	
3029:	A2 01	>50		LDX #1	
		>51	TWODIG		
302B:	B5 C4	>52		LDA DIGDAT,X	
302D:	29 01	>53		AND #1	
302F:	F0 05	>54		BEQ UPPTR	
3031:	D6 C4	>55		DEC DIGDAT,X	
3033:	4C 38 30	>56		JMP NDIG	
		>57	UPPTR		
3036:	F6 C4	>58		INC DIGDAT,X	
		>59	NDIG		
3038:	CA	>60		DEX	
3039:	10 F0	>61		BFL TWODIG	
		>62			
		>63			
		>64		* ANIMATE MR DO-->	*
		>65		*****	
303B:	A5 BE	>66		LDA ANIM8	
303D:	29 01	>67		AND #1	
303F:	AA	>68		TAX	
3040:	A5 BE	>69		LDA ANIM8	
3042:	49 01	>70		EOR #1	
3044:	85 BE	>71		STA ANIM8	
3046:	A0 03	>72		LDY #3	; LEFT DIR.
3048:	BD 48 32	>73		LDA MDPTL,X	
304B:	C4 B8	>74		CPY LASTJY	
304D:	F0 03	>75		BEQ LSTLFT	; J LAST MOVE WAS LEFT.
304F:	BD 4A 32	>76		LDA MDPTR,X	
		>77	LSTLFT		
3052:	85 C3	>78		STA DODAT	
		>79	ANIM9		
		>80		*****	
		>81		* DO SCREEN PROCESSING ONLY IF *	
		>82		* ORCHARD IS TO BE SHOWN-->	*
		>83		*****	
3054:	A5 DA	>84		LDA MODE	
3056:	C9 10	>85		CMP #PLAY	
3058:	F0 11	>86		BEQ ORK	
305A:	C9 20	>87		CMP #DODEAD	
305C:	F0 0D	>88		BEQ ORK	
305E:	C9 50	>89		CMP #TRACK	
3060:	D0 06	>90		BNE NORK	
3062:	A5 85	>91		LDA FRAMEH	

3062:	A5 85	>91	LDA	FRAMER	
3064:	29 03	>92	AND	#3	
3066:	D0 03	>93	BNE	ORK	
		>94	NORK		
3068:	4C 5C 32	>95	JMP	TITLE	:SKIP IT.
		>96	ORK		
		>97	*****		
		>98	* POS FM FOR CHANNEL SELECT-> *		
		>99	*****		
306B:	A5 8B	>100	LDA	ALPHA	
306D:	29 07	>101	AND	#7	
306F:	AA	>102	TAX		
3070:	BD EC 3C	>103	LDA	LETPOS,X	
3073:	A8	>104	TAY		
3074:	B9 E6 35	>105	LDA	POSTBL,Y	
3077:	A2 04	>106	LDX	#4	
3079:	20 D3 3C	>107	JSR	POS	
		>108			:

```

>110 *****
>111 * SET UP SA DISPLAY RAM--> *
>112 *****
>113 * SET UP NULLS FOR ALL SA RAM-->
>114 *-----*
>115 * ALL SA IMGS ARE ON IMG1 PAGE FOR NOW-->
>116 ;
>117 SETRAM
307C: A9 00 >118 LDA #0
307E: 85 DC >119 STA PTR ;INIT HI PAGE TO IMG1.
3080: A0 02 >120 LDY #2 ;PAGE POF.
3082: A9 E4 >121 LDA #<NULL1
3084: A2 07 >122 LDX #7 ;8 BANDS
>123 ISA
3086: 95 DE >124 STA LODATA,X
3088: 94 E7 >125 STY APOF,X
308A: CA >126 DEX
308B: 10 F9 >127 BPL ISA
>128 ;
>129 * TEST IF FALLING APPLE FRAME-->
>130 *-----*
308D: A5 84 >131 LDA FRAMEL
308F: 29 03 >132 AND #3 ;BOTH B0+B1 SET?
3091: C9 03 >133 CMP #3
3093: D0 2C >134 BNE NORMAP ;JP NO.
>135 ;ELSE FALLING APPLE IS ELIGIBLE-->
3095: A5 8D >136 LDA AFFALL
3097: 30 28 >137 BMI NORMAP ;JP NONE FALLING.
3099: 4A >138 LSR
309A: 4A >139 LSR
309B: 4A >140 LSR
309C: 4A >141 LSR
309D: AA >142 TAX ;X=WHICH AP IS FALLING.
309E: B6 F1 >143 STX TEMP3 ;SV IT.
30A0: B5 D0 >144 LDA APBAND,X
30A2: 4A >145 LSR
30A3: 4A >146 LSR
30A4: 4A >147 LSR
30A5: 4A >148 LSR
30A6: A8 >149 TAY ;AF BAND.
30A7: B5 D0 >150 LDA APBAND,X ;GET IMG PTR X2.
30A9: 0A >151 ASL
30AA: 29 1F >152 AND #$1F
30AC: AA >153 TAX
30AD: BD 3C 32 >154 LDA APIMG,X ;GET IMG ADDR LO.
30B0: 99 DE 00 >155 STA LODATA,Y
>156 ;SET PG PTR-->
30B3: BD 3D 32 >157 LDA APIMG+1,X
30B6: A6 F1 >158 LDX TEMP3 ;GET WHICH APPLE.
30B8: B5 D4 >159 LDA APOF,X ;FALLING AP POF.
30BA: AA >160 TAX
30BB: BD E6 35 >161 LDA POSTBL,X
30BE: 99 E7 00 >162 STA APOF,Y
>163 ;
>164 * SET ALL APPLES UP FOR DISPLAY
>165 * UNLESS FALLING AP ALREADY THERE
>166 *****
>167 NORMAP
30C1: A2 03 >168 LDX #3 ;APPLE COUNT.
30C3: 86 DD >169 STX BAND ;TEMP.
>170 APRAM
30C5: A6 DD >171 LDX BAND
30C7: B5 D0 >172 LDA APBAND,X
30C9: 30 26 >173 BMI AFR30 ;JP NO APPLE ON.
30CB: 4A >174 LSR
30CD: 10 >175 BPL

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30CD: 4A	>175 --	LSR	
30CD: 4A	>176	LSR	
30CE: 4A	>177	LSR	;GET BAND.
30CF: A8	>178	TAY	;AP BAND NUM.
30D0: B9 DE 00	>179	LDA LODATA,Y	
30D3: C9 E4	>180	CMF #NULL1	
30D5: D0 1A	>181	BNE AFR50	;JP SOMETHING ELSE THERE.
30D7: B5 D0	>182	LDA APBAND,X	
30D9: 29 0F	>183	AND #\$0F	;KP IMG IDX.
30DB: 0A	>184	ASL	;X 2.
30DC: AA	>185	TAX	
30DD: BD 3C 32	>186	LDA APIMG,X	
30E0: 99 DE 00	>187	STA LODATA,Y	
	>188		;SET PAGE PTR-
30E3: BD 3D 32	>189	LDA APIMG+1,Y	
30E6: A6 DD	>190	LDX BAND	;GET WHICH APPLE.
30E8: B5 D4	>191	LDA APOOF,X	
30EA: AA	>192	TAX	
30EB: BD E6 35	>193	LDA POSTBL,X	
30EE: 99 E7 00	>194	STA APOOF,Y	
	>195		
		AFR50	
30F1: C6 DD	>196	DEC BAND	
30F3: 10 D0	>197	BFL AFRAM	
	>198		:

```

>200 * SET UP DIGGERS/BADGUYS-->
>201 *****
30F5: 20 8C 31 >202 JSR COMPET ;ARE DIGS COMPETING 4 DISPLAY?
30F8: F0 1B >203 BEQ DIG15 ;JP YES.
>204 ;
>205 * DIGGERS DO NOT COMPETE-->
>206 *****
>207 *****
>208 * REV 15 MUX CODE--> *
>209 * APPLES MUX AT 1/3 OR 1/2 IF *
>210 * ONLY 1 DIG COMPETING. *
>211 *****
30FA: A5 84 >212 LDA FRAMEL
30FC: 29 01 >213 AND #1
30FE: D0 71 >214 BNE DIG50 ;J APPLE FRAME(1/2).
>215 ;
3100: A5 BE >216 LDA DIGBAND
3102: 30 05 >217 BMI DIG12 ;J IF OFF.
3104: A2 00 >218 LDX #0
3106: 20 C0 31 >219 JSR TURNON
>220 DIG12
3109: A5 BF >221 LDA DIGBAND+1
310B: 30 05 >222 BMI DIG13 ;J IF OFF.
310D: A2 01 >223 LDX #1
310F: 20 C0 31 >224 JSR TURNON
>225 DIG13
3112: 4C 89 31 >226 JMP DIG99
>227 ;
>228 * ONLY 1 DIGGER CAN BE SHOWN-->
>229 *****
>230 DIG15
>231 *****
>232 * REV 15 MUX CODE--> CONT. *
3115: A5 CE >233 LDA MUX
3117: F0 16 >234 BEQ AFLFR5 ;J APPLE FRAME(1/3).
>235 ;
3119: A2 01 >236 LDX #1
311B: A5 84 >237 LDA FRAMEL
311D: 29 02 >238 AND #2 ;B1 DIG GETS PRIORITY.
311F: D0 01 >239 BNE DIG17 ;JP FOR DIG2.
3121: CA >240 DEX
>241 DIG17
3122: B5 BE >242 LDA DIGBAND,X
3124: 20 C0 31 >243 JSR TURNON ;SET UP DIG2.
>244 DIG18
3127: 4C 89 31 >245 JMP DIG99
>246 ;
>247 * APPLES HAVE PRIORITY THIS FRAME-->
>248 * BUT SET UP ANY DIGS POSSIBLE *
>249 *W/O CONFLICT--> *
>250 *****
>251 AFLFRM
312A: 20 8C 31 >252 JSR COMPET ;DIGS COMPETING?
312D: D0 42 >253 BNE DIG50 ;JP NO.
>254 ;ONLY 1 MIGHT BE ABLE TO SHOW.
>255 AFLFR5
312F: A5 84 >256 LDA FRAMEL
3131: 29 02 >257 AND #2
3133: D0 1E >258 BNE DIG40 ;JP TO TRY DIG2 1ST.
3135: A2 00 >259 LDX #0
3137: 20 1E 32 >260 JSR TRYON ;TRY TO TURN ON DIG1.
313A: D0 08 >261 BNE DIG33 ;JP CAN'T BE TURNED ON.
313C: A2 00 >262 LDX #0 ;DIG 1 ON.
313E: 20 C0 31 >263 JSR TURNON ;TURN HIM ON.
3141: 4C 89 31 >264 JMP DIG99

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3144: A2 01 >265 DIG53 LDX #1
3146: 20 1E 32 >267 JSR TRYON ;SEE IF DIG 2 CAN BE TURNED ON.
3149: D0 3E >268 BNE DIG99 ;JP CAN'T TURN HIM ON EITHER.
314B: A2 01 >269 LDX #1 ;DIG2 ON.
314D: 20 C0 31 >270 JSR TURNON ;TURN HIM ON.
3150: 4C 89 31 >271 JMP DIG99
>272 ;
>273 DIG40
3153: A2 01 >274 LDX #1
3155: 20 1E 32 >275 JSR TRYON ;SEE IF DIG 2 CAN BE TURNED ON.
3158: D0 08 >276 BNE DIG45 ;JP CAN'T TURN HIM ON.
315A: A2 01 >277 LDX #1 ;DIG 2 ON.
315C: 20 C0 31 >278 JSR TURNON
315F: 4C 89 31 >279 JMP DIG99
>280 DIG45
3162: A2 00 >281 LDX #0
3164: 20 1E 32 >282 JSR TRYON ;SEE IF DIG1 CAN BE ON.
3167: D0 20 >283 BNE DIG99 ;JP CAN'T TURN HIM ON EITHER.
3169: A2 00 >284 LDX #0 ;DIG 1 ON.
316B: 20 C0 31 >285 JSR TURNON
316E: 4C 89 31 >286 JMP DIG99
>287 ;
>288 * BOTH DIGS MAY BE SHOWN IF NO APPLE COMPETITION->
>289 *****
>290 DIG50
3171: A2 00 >291 LDX #0
3173: 20 1E 32 >292 JSR TRYON ;SEE IF DIG 1 CAN BE ON..
3176: D0 05 >293 BNE DIG60 ;JP CAN'T TURN ON.
3178: A2 00 >294 LDX #0 ;DIG 1 ON.
317A: 20 C0 31 >295 JSR TURNON ;TURNON.
>296 DIG60
317D: A2 01 >297 LDX #1
317F: 20 1E 32 >298 JSR TRYON ;SEE IF DIG 2 CAN BE ON.
3182: D0 05 >299 BNE DIG99 ;JP CAN'T TURN ON.
3184: A2 01 >300 LDX #1 ;DIG 2 ON.
3186: 20 C0 31 >301 JSR TURNON
>302 ;
>303 DIG99
3189: 4C 5C 32 >304 JMP TITLE

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>305 * DISPLAY SORTING SUBROUTINES->
>307 *****
>308 * SEE IF 2 DIGGERS COMPETE FOR DISPLAY->
>309 *****
>310 COMPET
318C: A5 BE >311 LDA DIGBAND
318E: 10 01 >312 BPL COMP1 ;JP ON.
3190: 60 >313 RTS ;RET NE.
>314 COMP1
3191: 29 70 >315 AND #$70
3193: 85 EF >316 STA TEMP1 ;SV BAND.
3195: A5 BF >317 LDA DIGBAND+1
3197: 10 01 >318 BPL COMP15 ;JP ON.
3199: 60 >319 RTS ;RET NE.
>320 COMP15
319A: 29 70 >321 AND #$70
319C: 38 >322 SEC
319D: E5 EF >323 SBC TEMP1
319F: D0 01 >324 BNE COMP2 ;JP NOT ON SAME BAND.
31A1: 60 >325 RTS ;RET W/EO.
>326 COMP2
31A2: C9 10 >327 CMP #$10
31A4: D0 00 >328 BNE COMP3
>329 ;
>330 * DIG2 IS 1 BAND ABOVE DIG1->
>331 *****
31A6: A5 EF >332 LDA DIGBAND-1
31A8: 29 0F >333 AND #$0F ;GET LN.
31AA: D0 03 >334 BNE CPETE ;J NZ.
31AC: A9 01 >335 LDA #1
31AE: 60 >336 RTS
>337 CPETE
31AF: A9 00 >338 LDA #0
31B1: 60 >339 RTS ;RET W/EO.
>340 COMP3
31B2: C9 F0 >341 CMP #$F0
31B4: F0 01 >342 BEQ CPETE2
31B6: 60 >343 RTS ;ELSE RET NO COMPETE.
>344 * DIG1 IS 1 BAND ABOVE DIG2->
>345 *****
>346 CPETE2
31B7: A5 BE >347 LDA DIGBAND
31B9: 29 0F >348 AND #$0F
>349
31BB: D0 F2 >350 BNE CPETE ;RET W/Y COMPETING.
31BD: A9 01 >351 LDA #1
31BF: 60 >352 RTS
>353 ;
>354 * TURN ON A DIG IN DISPLAY RAM->
>355 * IN X=IDX TO WHICH DIGGER TO TURN ON.
>356 *****
>357 TURNON
31C0: B5 C4 >358 LDA DIGDAT,X ;GET DIGIMG IDX.
31C2: 29 0F >359 AND #$0F
31C4: A8 >360 TAY
31C5: A9 00 >361 LDA #0
31C7: C0 04 >362 CPY #4 ;IS SPRITE ON 1ST PAGE IMG'S?
31C9: 90 02 >363 BCC FIRST ;J ON PAGE 1.
31CB: A9 01 >364 LDA #1
>365 FIRST
31CD: 85 F1 >366 STA TEMP3 ;SV MASK FOR PTR.
>367 ;
31CF: B9 4C 32 >368 LDA DIGIMG,Y
31D2: 85 EF >369 STA TEMP1 ;SV DATA PTR. (LO)
31D4: B5 BE >370 LDA DIGBAND,X

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31D6: 35 F0 >371 STA TEMP2 ;SV BAND/LN.
31D8: 4A >372 LSR
31D9: 4A >373 LSR
31DA: 4A >374 LSR
31DB: 4A >375 LSR
31DC: A8 >376 TAY ;BAND.
31DD: 18 >377 CLC
          >378 PTRBIT
31DE: 88 >379 DEY
31DF: 30 06 >380 BMI PTRDON
31E1: 18 >381 CLC
31E2: 06 F1 >382 ASL TEMP3 ;SET UP BIT FOR PAGE PTR.
31E4: 4C DE 31 >383 JMP PTRBIT
          >384 PTRDON
31E7: A8 >385 TAY ;GET BAND NUM.
31E8: A5 F1 >386 LDA TEMP3 ;GET ADJUSTED MASK.
31EA: 05 DC >387 ORA PTR
31EC: 35 DC >388 STA PTR
          >389 ;
          >390 ;SET UP FOS FOR DISPLAY.
31EE: B5 C1 >391 LDA DIGPOF,X
31F0: AA >392 TAX ;
31F1: BD E6 35 >393 LDA POSTBL,X
31F4: 99 E7 00 >394 STA APOF,Y
          >395 ;
31F7: A5 F0 >396 LDA TEMP2 ;GET BAND/LN.
31F9: 29 0F >397 AND #$0F
31FB: D0 06 >398 BNE TURN5 ;JP NOT W/I A BAND.
31FD: A5 EF >399 LDA TEMP1 ;GET DATA PTR.
31FF: 99 DE 00 >400 STA LODATA,Y
3202: 60 >401 RTS
          >402 *****
          >403 * NEED TWO BANDS FOR OBJ-->
          >404 *****
          >405 TURN5
3203: AA >406 TAX ;X=LN OFFSET.
3204: BD 67 36 >407 LDA TOPOFF,X
3207: 18 >408 CLC
3208: 65 EF >409 ADC TEMP1 ;ADD DATA PTR.
320A: 99 DE 00 >410 STA LODATA,Y ;SV DIG DATA PTR LO.
320D: A5 EF >411 LDA TEMP1 ;GET DATA PTR.
320F: 38 >412 SEC
3210: FD 77 36 >413 SBC BOTOFF,X
3213: 99 DD 00 >414 STA LODATA-1,Y ;SV DIG DATA PTR LO.
3216: A5 F1 >415 LDA TEMP3 ;GET PTR MASK.
3218: 4A >416 LSR ;SHIFT FOR DOWN 1 BAND.
3219: 05 DC >417 ORA PTR
321B: 85 DC >418 STA PTR
321D: 60 >419 RTS
          >420 * TEST IF NULLS WHERE A DIG IS->
          >421 * IN X= WHICH DIG TO TEST FOR.
          >422 *****
          >423 TRYON
321E: B5 BE >424 LDA DIGBAND,X
3220: 10 01 >425 BPL TRY1 ;JP IF ON.
3222: 60 >426 RTS ;RET NE.
          >427 TRY1
3223: 4A >428 LSR
3224: 4A >429 LSR
3225: 4A >430 LSR
3226: 4A >431 LSR
3227: A8 >432 TAY ;BAND.
3228: B5 BE >433 LDA DIGBAND,X
322A: 29 0F >434 AND #$0F ;W/I 1 BAND?
322C: F0 08 >435 BEQ TRY9 ;JP YES.
322E: B9 DD 00 >436 LDA LODATA-1,Y

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3231: C9 E4 >437
3233: F0 01 >438
3235: 60 >439
 >440 TRY9
3236: B9 DE 00 >441
3239: C9 E4 >442
323B: 60 >443
 >444

CMF #<NULL1
BEQ TRY9 ;JP LOWER BAND OK.
RTS

LDA LODATA,Y
CMF #<NULL1
RTS ;

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>446 * APPLE IMAGE PTR TABLE->
>447 *****
>448 * BYTE 1=IMG ADR LO, BYTE 2=IMG PAGE.
>449 APIMG
>450 ;APPLE SITTING->
323C: 00 00 >451 DFB <APPLE1,0
>452 ;AP ROCKING LEFT->
323E: 0E 00 >453 DFB <APPLE2,0
>454 ;APPLE ROCKING RIGHT->
3240: 1C 00 >455 DFB <APPLE3,0
>456 ;APPLE FALLING ->
3242: 00 00 >457 DFB <APPLE1,0
>458 ;APPLE BREAKING STAGE 1.->
3244: 2A 00 >459 DFB <APPLE4,0
>460 ;APPLE BREAKING STAGE 2->
3246: 38 00 >461 DFB <APPLE5,0
>462 ;
>463 ;DO FACES LEFT->
>464 MRDOIMG
>465 MDPTL
3248: 22 44 >466 DFB <MRDOLL,<MRDORL
>467 ;DO FACES RIGHT->
>468 MDFTR
324A: 66 88 >469 DFB <MRDORR,<MRDOLR
>470 DIGIMG
324C: 4F >471 DFB <DIGLR
324D: 70 >472 DFB <DIGLL
>473 ;REALLY DIGGING IMG->
324E: 92 >474 DFB <DUGLL
324F: B4 >475 DFB <DUGLR
>476 ;
>477 * DIGGING FACING LEFT->
3250: 00 >478 DFB <DUGRR
3251: 20 >479 DFB <DUGRL
>480 ;
>481 LETIMG
3252: 49 >482 DFB <LETRE ;LETTER E
3253: 49 >483 DFB <LETRE
3254: 6A >484 DFB <LETRX ;LETTER X
3255: 6A >485 DFB <LETRX
3256: 8B >486 DFB <LETRT ;LETTER T
3257: 8B >487 DFB <LETRT
3258: AC >488 DFB <LETRR ;LETTER R
3259: AC >489 DFB <LETRR
325A: CD >490 DFB <LETRA ;LETTER A
325B: CD >491 DFB <LETRA
>492 ;

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34 *****
35 * TITLE SCREEN PAINTING FILE *
36 *****
37 PUT MR.DO.TITLE
>1 */MR.DO.TITLE LASTED 9/12/83.
>2 *****
>3 TITLE
>4 TOPEND
325C: AD 84 02 >5 LDA TIMER
325F: 30 FB >6 BMI TOPEND
>7 ;
>8 * TURN GUN BACK ON-->
>9 *****
3261: A9 40 >10 LDA #$40
3263: 85 02 >11 STA ATWAIT
3265: 85 01 >12 STA ATBLNK ;GUN ON.
>13 ;
3267: A9 BC >14 LDA #MIDTIM
3269: 8D 96 02 >15 STA TIME64 ;SET TIMER.
326C: A5 DA >16 LDA MODE
326E: C9 30 >17 CMP #SELECT
3270: D0 0D >18 BNE TEST2
>19 ;
>20 * "MR DO! GAME 1" -->
>21 *****
3272: A9 B6 >22 LDA #<MRDOT1
3274: A2 C3 >23 LDX #<GAMETB
3276: A0 BD >24 LDY #<NULLTB
3278: 4C CE 32 >25 JMP TITL12
>26 ;
>27 * MR DO DANCE SPD BY GAME NUM-->
>28 GAMSPD
327B: 20 10 08 >29 DFB $20,$10,$08,$04
327E: 04 >30 ;
>31 TEST2
327F: C9 10 >32 CMP #FLAY
3281: F0 1A >33 BEQ ORKSCR
3283: C9 20 >34 CMP #DODEAD
3285: F0 16 >35 BEQ ORKSCR
>36 ;
3287: C9 40 >37 CMP #GAMDOVR
3289: F0 34 >38 BEQ TITLE1 ;JP IF GAME OVER SCREEN.
328B: C9 70 >39 CMP #XTRADO
328D: F0 11 >40 BEQ TITLE0
>41 ;
328F: C9 80 >42 CMP #RESUM
3291: F0 60 >43 BEQ TITLE3
>44 ;
>45 ;
3293: C9 50 >46 CMP #TRACK
3295: D0 06 >47 BNE ORKSCR ;J N.
>48 ;
3297: A5 85 >49 LDA FRAMEH
3299: 29 05 >50 AND #3
329B: F0 4D >51 BEQ TITLE2 ;SHOW COLECO PRES MRDO.
>52 ORKSCR
329D: 4C 8B 33 >53 JMP ORCHARD
>54 ;
>55 * SET UP FOR "EXTRA MR DO!"
>56 *****
>57 TITLE0
32A0: A9 CF >58 LDA #<LETTBL ;EXTRA.
32A2: 85 EC >59 STA TEMP11
32A4: A9 B6 >60 LDA #<MRDOT1 ;MR.DO'

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32A6: 85 ED >61 STA TEMP12
32A8: A9 BD >62 LDA #<NULLTB ;NULL
32AA: 85 EE >63 STA TEMP13
                                     ;ANIM8 MR DO IMG-
32AC: A0 66 >65 LDY #<MRDGR
32AE: A5 84 >66 LDA FRAMEL
32B0: 29 10 >67 AND #$10
32B2: D0 02 >68 BNE IMG5
32B4: A0 88 >69 LDY #<MRDOLR
                                     IMG5
32B6: 84 EA >71 STY TEMP14
32B8: A9 39 >72 LDA #>MRDOLL
32BA: 85 EB >73 STA TEMP15
32BC: 4C 03 33 >74 JMP TITLE9
                                     ;
>75
>76 * TITLE SCREEN
>77 *****
>78 TITLE1
32BF: A5 85 >79 LDA FRAMEH
32C1: 29 03 >80 AND #3
32C3: F0 03 >81 BEQ TITL11
32C5: 4C 8B 33 >82 JMP ORCHARD
                                     ;
>83
>84 * "GAME OVER" SCREEN->
>85 *****
>86 TITL11
32C8: A9 BD >87 LDA #<NULLTB ;NULL
32CA: A2 03 >88 LDX #<GAMETB ;GAME
32CC: A0 09 >89 LDY #<OVERTB ;OVER
                                     ;
>90
>91 * SET UP DANCE SPEED-->
>92 *****
>93 TITL12
32CE: 85 EC >94 STA TEMP11
32D0: 86 ED >95 STY TEMP12
32D2: 84 EE >96 STY TEMP13
32D4: A0 22 >97 LDY #<MRDOLL
32D6: A5 84 >98 LDA FRAMEL
32D8: A6 80 >99 LDX GAME
32DA: 3D 7B 32 >100 AND GAMESPD,X
32DD: D0 02 >101 BNE IMG6
32DF: A0 44 >102 LDY #<MRDORL
                                     IMG6
32E1: 84 EA >104 STY TEMP14
32E3: A9 39 >105 LDA #>MRDOLL
32E5: 85 EB >106 STA TEMP15
32E7: 4C 03 33 >107 JMP TITLE9
                                     ;
>108
>109 * "COLECO PRESENTS MR DO!" SCREEN->
>110 *****
>111 TITLE2
32EA: A9 AA >112 LDA #<COLECO ;COLECO
32EC: A2 B0 >113 LDX #<PRESNT ;PRESENTS
32EE: A0 B7 >114 LDY #<MRDOTB ;MRDO.
32F0: 4C CE 32 >115 JMP TITL12
                                     TITLE3
32F3: A9 BD >117 LDA #<NULLTS
32F5: 85 EC >118 STA TEMP11
32F7: 85 ED >119 STA TEMP12
32F9: 85 EE >120 STA TEMP13
32FB: A9 34 >121 LDA #<NULLB
32FD: 85 EA >122 STA TEMP14
32FF: A9 39 >123 LDA #>NULLB
3301: 95 EB >124 STA TEMP15 ;NO DO.

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>126 TITLE9
>127
3303: A9 86 >128 LDA #86
3305: 85 06 >129 STA ATACOL
3307: 85 07 >130 STA ATBCOL
>131
>132 * SET UP FOR TOP WORD -->
>133 *****
3309: A5 EC >134 LDA TEMP11 ;GET TBL PTR LO.
330B: A2 3C >135 LDX #DATA2
330D: 20 DB 39 >136 JSR SFRIT6
>137
>138 HOLDUP
3310: AD 84 02 >139 LDA TIMER
3313: 30 FB >140 BMI HOLDUP
>141
3315: 85 02 >142 STA ATWAIT
>143
3317: 20 96 3F >144 JSR SCORE ;PAINT TOP WORD.
>145
>146
331A: A9 D4 >147 LDA #D4
331C: 85 06 >148 STA ATACOL
331E: 85 07 >149 STA ATBCOL
>150
>151 * SET UP FOR MIDDLE WORD-->
>152 *****
3320: A5 ED >153 LDA TEMP12
3322: A2 3C >154 LDX #DATA2
3324: 20 DB 39 >155 JSR SFRIT6
>156
3327: A2 14 >157 LDX #20
>158 HOLD7
3329: 85 02 >159 STA ATWAIT
332B: CA >160 DEX
332C: 10 FB >161 BPL HOLD7
>162
332E: 20 96 3F >163 JSR SCORE
>164
3331: A9 34 >165 LDA #34
3333: 85 06 >166 STA ATACOL
3335: 85 07 >167 STA ATBCOL
>168
>169 * SET UP FOR BOTTOM WORD-->
>170 *****
3337: A5 EE >171 LDA TEMP13
3339: A2 3C >172 LDX #DATA2
333B: 20 DB 39 >173 JSR SFRIT6
>174
333E: A2 1C >175 LDX #28
>176 HOLD9
3340: 85 02 >177 STA ATWAIT
3342: A5 DA >178 LDA MODE
3344: C9 30 >179 CMP #SELECT
3346: D0 0B >180 BNE NOTSEL
>181 ;SET UP A DIGIT->
3348: A4 80 >182 LDY GAME ;GET NUM.
334A: B9 E9 38 >183 LDA SCORTB+1,Y
334D: 85 FB >184 STA PD100
334F: A9 38 >185 LDA #DIGITS
3351: 85 F9 >186 STA PD100+1
>187 NOTSEL
3353: CA >188 DEX
3354: 10 EA >189 BPL HOLD9
>190

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3356: 20 96 3F >191 JBR SCORE
>192
3359: A2 2D >193 LDX #45
>194 HOLD10
335B: 85 02 >195 STA ATWAIT
335D: CA >196 DEX
335E: 10 FB >197 BPL HOLD10
>198
>199
3360: A9 0E >200 LDA #WHITE
3362: 85 06 >201 STA ATACOL
>202
>203 * FAINT A MR DO IMAGE--->
>204 *****
3364: A9 00 >205 LDA #0 ;FAINT A DO.
3366: 85 25 >206 STA ATASEL
3368: 85 26 >207 STA ATBSEL ;SELECT IMMEDIATE MODE.
336A: 85 04 >208 STA ATACTL
>209
336C: A4 C0 >210 LDY DOPOF
336E: 89 E6 35 >211 LDA POSTBL,Y
3371: A2 00 >212 LDX #0 ;SA.
3373: 20 D3 3C >213 JSR POS
3376: A0 0F >214 LDY #15
>215 DO1
3378: B1 EA >216 LDA (TEMP14),Y ;GET IMG.
337A: 85 02 >217 STA ATWAIT
337C: 85 1B >218 STA ATADAT
337E: 88 >219 DEY
337F: 10 F7 >220 BPL DO1
>221
>222 ;DELAY
3381: A2 15 >223 LDX #21
>224 WAITS
3383: 85 02 >225 STA ATWAIT
3385: CA >226 DEX
3386: 10 FB >227 BPL WAITS
>228
3388: 4C 07 30 >229 JMP BVISW

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39 *****
40 * ORCHARD SCREEN SETUP FILE *
41 *****
42 PUT MR.DO.DISPLAY
>1 * MR.DO.DISPLAY LASTED 9/14/83.
>2 *****
>3 * MAIN DISPLAY
>4 * SHOW SCORE,EXTRA & ORCHARD->
>5 *****
>6 *
>7 * PAINT & DIGIT SCORE
>8 *-----
>9 ORCHARD
338B: 85 2B >10 STA ATREMV ;CLR INCR FOR FM.
>11 ;
338D: A9 38 >12 LDA #>DATA1
338F: 85 F3 >13 STA PD100K+1
3391: 85 F5 >14 STA PD10K+1
3393: 85 F7 >15 STA PD1K+1
3395: 85 F9 >16 STA PD100+1
3397: 85 FB >17 STA PD10+1
3399: 85 FD >18 STA PD1+1
>19 ;
339B: A9 90 >20 LDA #<ZERO
339D: 85 FC >21 STA PD1 ;LO DIG = 0.
339F: A9 E0 >22 LDA #<BLANK
33A1: 85 F2 >23 STA PD100K ;HI DIG=BLANK.
33A3: A5 82 >24 LDA SCORLO
33A5: 29 0F >25 AND #$0F
33A7: A8 >26 TAY
33A8: B9 E8 38 >27 LDA SCORTB,Y
33AB: 85 FA >28 STA PD10
33AD: A5 82 >29 LDA SCORLO
33AF: 4A >30 LSR
33B0: 4A >31 LSR
33B1: 4A >32 LSR
33B2: 4A >33 LSR
33B3: A8 >34 TAY
33B4: B9 E8 38 >35 LDA SCORTB,Y
33B7: 85 F8 >36 STA PD100
>37 ;
33B9: A5 83 >38 LDA SCORHI
33BB: 29 0F >39 AND #$0F
33BD: A8 >40 TAY
33BE: B9 E8 38 >41 LDA SCORTB,Y
33C1: 85 F6 >42 STA PD1K
33C3: A5 83 >43 LDA SCORHI
33C5: 4A >44 LSR
33C6: 4A >45 LSR
33C7: 4A >46 LSR
33C8: 4A >47 LSR
33C9: A8 >48 TAY
33CA: B9 E8 38 >49 LDA SCORTB,Y
33CD: 85 F4 >50 STA PD10K
>51 ;
33CF: A9 28 >52 LDA #YELLOW
33D1: 85 06 >53 STA ATACOL
33D3: 85 07 >54 STA ATBCOL
33D5: 20 96 3F >55 JSR SCORE ;PAINT NUMBERS
>56 ;
>57 * PAINT "EXTRA" W/REV VIDEO FOR
>58 * LETTERS ALREADY GOTTEN-->
>59 *****
33D8: A9 05 >60 LDY #5
33DA: A2 0E >61 LDX #11

```

```

33DC: A5 8B >62 LDA ALPHA ;GET ALF FLAGS.
33DE: 85 EF >63 STA TEMP1
>64 ALFSET
33E0: A9 3C >65 LDA #DATA2
33E2: 95 F2 >66 STA PD100K,Y
33E4: CA >67 DEY
33E5: 06 EF >68 ASL TEMP1
33E7: B9 CF 39 >69 LDA LETTBL,Y
33EA: 90 03 >70 BCC NORM
33EC: B9 D5 39 >71 LDA REVTBL,Y ;GET REV VIDEO.
>72 NORM
33EF: 95 F2 >73 STA PD100K,X
33F1: CA >74 DEY
33F2: 88 >75 DEY
33F3: 10 EB >76 BPL ALFSET
>77
>78
>79 *PAINT CHANNEL SELECT W/FLD MIS->
*****
33F5: A9 02 >80 LDA #2
33F7: A0 05 >81 LDY #5 ;PAL (5 LINES)
>82 PAL6
33F9: 85 02 >83 STA ATWAIT
33FB: 88 >84 DEY
33FC: 10 FB >85 BPL PAL6 ;DELAY 5 LINES.
>86
33FE: 85 1F >87 STA ATENFM ;FM ON.
>88
3400: A9 FF >89 LDA #$FF
3402: 85 0F >90 STA ATRR2 ;THIN LINE.
3404: A9 B2 >91 LDA #$B2 ;DRK BLUE.
3406: 85 08 >92 STA ATFCOL
3408: A9 28 >93 LDA #YELLOW
340A: 85 06 >94 STA ATACOL
340C: 85 07 >95 STA ATECOL
340E: A9 01 >96 LDA #1
>97
3410: 85 02 >98 STA ATWAIT
3412: 85 02 >99 STA ATWAIT ;PAL(3)
3414: 95 02 >100 STA ATWAIT
3416: 85 02 >101 STA ATWAIT
3418: 85 0F >102 STA ATRR2
>103
341A: 20 BA 3F >104 JSR SCORE1 ;DO 6 SPRITES W/O POS-
>105 ;PAINT EXTRA.
341D: A2 FF >106 LDX #$FF
341F: 85 02 >107 STA ATWAIT
3421: 86 0F >108 STX ATRR2 ;THIN LINE.
3423: A9 00 >109 LDA #0
>110
3425: 85 1F >111 STA ATENFM ;FM OFF.
3427: A9 00 >112 LDA #0
3429: 85 25 >113 STA ATASEL
342B: 85 26 >114 STA ATBSEL ;RESET SELECT REGS.
342D: 85 04 >115 STA ATACTL
342F: 85 05 >116 STA ATBCTL
>117
3431: 85 02 >118 STA ATWAIT ;PAL(3)
3433: 85 02 >119 STA ATWAIT
3435: 85 02 >120 STA ATWAIT
3437: 85 02 >121 STA ATWAIT
3439: A9 00 >122 LDA #BLACK
343B: 85 08 >123 STA ATFCOL ;THIN LINE OFF.
>124
>125
>126 * POS SA MIS FOR POWERBALL->
>127 *****

```

343D:	A5	DA	>127	LDA	MODE	
343E:	09	10	>128	CMF	#PLAY	
3441:	D0	3E	>130	BNE	NOPWR	
3443:	A5	BA	>131	LDA	MSBAND	: FWRBALL ON?
3445:	30	0A	>132	BMI	NOPWR	: J N.
3447:	A4	BB	>133	LDY	MISPOF	
3449:	B9	E6	35 >134	LDA	POSTBL,Y	
344C:	A2	02	>135	LDX	#2	
344E:	20	D3	3C >136	JSR	POS	: POS SA.
			>137			
			>138			

NOPWR

:

```

>140 *****
>141 * SET UP SPRITE B DISPLAY RAM *
>142 *****
>143 ;
>144 * SET UP CHERRY DISPLAY RAM-->
>145 *-----*
3451: A2 07 >146 LDX #7
>147 ICHERRY
>148 ;
3453: B5 90 >149 LDA CHERRYC,X
3455: 10 16 >150 BPL CHERRY5 ;JP IF NO CHERRY IN BAND.
>151 * THERE IS A CHERRY IN BAND,SET UP POF+IMAGE PTR.-->
>152 *****
3457: 29 7F >153 AND #$7F
3459: 4A >154 LSR
345A: 4A >155 LSR
345B: 4A >156 LSR
345C: A8 >157 TAY ;GIVE Y 4 BIT IDX TO POS TABLE.
345D: B9 87 36 >158 LDA CHRPOS,Y ;GET IDX TO POS TBL.
3460: A8 >159 TAY
3461: B9 E6 35 >160 LDA POSTBL,Y
3464: 95 F8 >161 STA BPOF,X ;CHERRY POS.
3466: A9 00 >162 LDA #<CHERRY
3468: 95 EF >163 STA LODATB,X
346A: 4C 75 34 >164 JMP CDAT
>165 ;
>166 * MUX CHERRY (SB)W/NULL FOR NOW.
>167 ;
>168 * IF MR DO ON BAND USE HIM,ELSE USE BLANK(NULL)-->
>169 *****
>170 CHERRY5
346D: A9 02 >171 LDA #02 ;FAKE POF.
346F: 95 F8 >172 STA BPOF,X
3471: A9 34 >173 LDA #<NULLB ;NULL IMG ON SB IMG PAGE.
3473: 95 EF >174 STA LODATB,X
>175 CDAT
3475: CA >176 DEX
3476: 10 DB >177 BPL ICHERRY
>178 ;

```

```

>180 *****
>181 * HANDLE MR.DC MUX--> *
>182 *****
>183 * PUT MR DO RAM IN PLACE-->
3479: A5 BD >184 LDA DOBAND
347A: 10 03 >185 BFL FTEST ;JP IF DO IS ON.
347C: 4C F2 34 >186 JMP FWAIT
>187 FTEST
347F: A5 34 >188 LDA FRAMEL
3481: 29 01 >189 AND #1
3483: F0 03 >190 BEQ DOWIME ;JP MR DO ON THIS FRAME.
3485: 4C BA 34 >191 JMP NODD ;MD NOT ON THIS FRAME.
>192 DOWIME
3488: A5 BD >193 LDA DOBAND
348A: 4A >194 LSR
348B: 4A >195 LSR
348C: 4A >196 LSR
348D: 4A >197 LSR
348E: 29 07 >198 AND #7
3490: AA >199 TAX ;MR DO BAND NUM.
3491: A4 C0 >200 LDY DDOFF ;GET MD POS TEL IDX.
3493: B9 E6 35 >201 LDA POSTBL,Y
3496: 95 F8 >202 STA BPOF,X
>203 ;
>204 * DECIDE IF 2 BANDS ARE NEEDED-->
3498: A5 BD >205 LDA DOBAND
349A: 29 0F >206 AND #$0F ;KEEP DATA OFFSET.
349C: F0 15 >207 BEQ BAND1 ;JP NO OFFSET.
349E: A8 >208 TAY
349F: B9 67 36 >209 LDA TOPOFF,Y
34A2: 18 >210 CLC
34A3: 65 C3 >211 ADC DODAT
34A5: 95 EF >212 STA LODATB,X ;SET UP DATA PTR HI BAND.
>213 ;
34A7: CA >214 DEX
34A8: A5 C3 >215 LDA DODAT ;DATA PTR LO.
34AA: 38 >216 SEC
34AB: F9 77 36 >217 SBC BOTOFF,Y
34AE: 95 EF >218 STA LODATB,X ;SET UP DATA PTR LO BAND.
34B0: 4C F2 34 >219 JMP FWAIT
>220 BAND1
34B5: A5 C3 >221 LDA DODAT ;MD DATA PTR LO.
34B5: 95 EF >222 STA LODATB,X
34B7: 4C F2 34 >223 JMP FWAIT
>224 ;
>225 * NOT MR DO NORMAL FRAME-->
>226 *****
>227 NODD
34BA: A5 BD >228 LDA DOBAND
34BC: 4A >229 LSR
34BD: 4A >230 LSR
34BE: 4A >231 LSR
34BF: 4A >232 LSR
34C0: 29 07 >233 AND #7 ;GET BAND.
34C2: AA >234 TAX
34C3: B5 90 >235 LDA CHERRYC,X
34C5: 30 2B >236 BMI FWAIT ;JP CHERRY ON THIS BAND.
34C7: A5 BD >237 LDA DOBAND
34C9: 29 0F >238 AND #$0F
34CB: F0 1A >239 BEQ MDON ;JP IF LN=0 (TURN MD ON.)
34CD: A8 >240 TAY ;Y=LN OFFSET.
34CE: CA >241 DEX ;1 BAND LESS.
34CF: B5 90 >242 LDA CHERRYC,X
34D1: 30 1F >243 BMI FWAIT ;JP CHERRY ON IN LOWER BAND.
34D3: F8 >244 INY

```


34D4:	B9 67 36	>245	LDA	TOPOFF, Y	
34D7:	13	>246	CLC		
34D8:	65 C3	>247	ADC	DODAT	
34DA:	95 EF	>248	STA	LODATB, X	
34DC:	A5 C3	>249	LDA	DODAT	
34DE:	38	>250	SEC		
34DF:	F9 77 36	>251	SBC	BOTOFF, Y	
34E2:	95 EE	>252	STA	LODATB-1, X	; LOWER BAND IMG.
34E4:	4C EB 34	>253	JMP	MDPOF	
		>254			MDON
34E7:	A5 C3	>255	LDA	DODAT	
34E9:	95 EF	>256	STA	LODATB, X	; MD IMG.
		>257			MDPOF
34EB:	44 C0	>258	LDY	DOPOF	
34ED:	B9 E6 35	>259	LDA	POSTBL, Y	
34F0:	95 F8	>260	STA	BPOF, X	
		>261			:

```

>263 PWAIT
>264 PWS
34F2: AD 04 02 >265 LDA TIMER
34F5: 30 FB >266 BMI PWS
>267
34F7: 85 02 >268 STA ATWAIT
34F9: A9 FF >269 LDA #$FF ;PAL
34FB: 8D 96 02 >270 STA TIME64 ;PAL
>271
>272
>273
34FE: A9 80 >273 LDA #$80
3500: 85 0D >274 STA ATFR0 ;BORDER.
3502: A9 FF >275 LDA #$FF
3504: 85 0E >276 STA ATFR1
3506: 85 0F >277 STA ATFR2
3508: A5 8F >278 LDA FCOLOR
>279 ;FLD ON->
350A: 85 08 >280 STA ATFCOL
>281 ;FLD OFF 2 LINES->
350C: 85 02 >282 STA ATWAIT
350E: A9 00 >283 LDA #SCRCOL
3510: 85 08 >284 STA ATFCOL
3512: 85 02 >285 STA ATWAIT ;PAL(3)
3514: 85 02 >286 STA ATWAIT
3516: A5 8F >287 LDA FCOLOR
3518: 85 08 >288 STA ATFCOL
351A: 85 02 >289 STA ATWAIT
351C: A9 00 >290 LDA #BLACK
351E: 85 08 >291 STA ATFCOL
3520: 85 02 >292 STA ATWAIT
>293
3522: A9 39 >294 LDA #SBIMG ;PAGE OF SB IMAGES.
3524: 85 F7 >295 STA HIDATB ;SET SE HI DATA PTR.
>296 ;ALL ON SAME PG FOR NOW.
3526: 85 2B >297 STA ATREMV ;CLR INCR.
>298
>299
>300 *****
>301 * GO PAINT ORCHARD + INVENTORY-->
>302 *****
3528: 4C F4 3C >302 JMP PAINT ;PAINT THE SCREEN.

```

44			*****
45			* SOUND & MUSIC CONTROL FILE *
46			*****
47			FUT MR.DO.MUSIC
>1			*/ MR.DO.MUSIC LASTED: 7/26/83.
>2			*****
>3			* SOUND CONTROL ROUTINE--> *
>4			*****
352B:	A4	89	>5 MUSIC LDY BDUR
352D:	10	03	>6 BFL MUS2 ;JP IF MUSIC ON.
352F:	4C	B5 35	>7 JMP SOUND
			>8 MUS2
3532:	D0	3A	>9 BNE MUS25 ;JP NOTE NOT DONE.
3534:	A4	87	>10 LDY BIDX
3535:	A2	0C	>11 LDX #\$0C
3538:	B9	51 37	>12 LDA BMUSFW,Y
353B:	C9	FF	>13 CMP #\$FF ;SONG DONE?
353D:	F0	26	>14 BEQ MUS15 ;JP YES.
353F:	B9	51 37	>15 LDA BMUSFW,Y
3542:	30	02	>16 BMI MUS5
3544:	A2	04	>17 LDX #\$04
			>18 MUS5
3546:	86	16	>19 STX ATBWAV ;NEW WAVE.
3548:	85	18	>20 STA ATBDIV ;NEW FREQ.
354A:	B9	AE 37	>21 LDA BMUSVT,Y
354D:	29	3F	>22 AND #\$3F
354F:	85	89	>23 STA BDUR
3551:	B9	AE 37	>24 LDA BMUSVT,Y
3554:	4A		>25 LSR
3555:	4A		>26 LSR
3556:	4A		>27 LSR
3557:	4A		>28 LSR
3558:	4A		>29 LSR
3559:	4A		>30 LSR
355A:	AA		>31 TAX
355B:	BD	0B 38	>32 LDA VOLTEL,X
355E:	85	1A	>33 STA ATBVOL ;NEW VOL.
3560:	E6	87	>34 INC BIDX
3562:	4C	70 35	>35 JMP MUS50 ;GO DO CH.A.
			>36 MUS15
3565:	A2	00	>37 LDX #0
3567:	86	1A	>38 STX ATBVOL ;SONG OVER.
3569:	CA		>39 DEX
356A:	86	89	>40 STX BDUR
356C:	30	02	>41 BMI MUS50
			>42 MUS25
356E:	C6	89	>43 DEC BDUR
			>44 ;DO CH. A MUSIC-->
			>45 MUS50
3570:	A4	88	>46 LDY ADUR
3572:	30	71	>47 BMI SND99 ;JP NOT ON.
3574:	D0	3A	>48 BNE MUS75 ;JP NOTE NOT DONE.
3576:	A4	86	>49 LDY AIDX
3578:	A2	0C	>50 LDX #\$0C
357A:	B9	97 36	>51 LDA AMUSFW,Y
357D:	C9	FF	>52 CMP #\$FF ;SONG DONE?
357F:	F0	26	>53 BEQ MUS65 ;JP YES.
3581:	B9	97 36	>54 LDA AMUSFW,Y
3584:	30	02	>55 BMI MUS55
3586:	A2	04	>56 LDX #\$04
			>57 MUS55
3588:	86	15	>58 STX ATAWAV ;NEW WAVE.
358A:	85	17	>59 STA ATADIV ;NEW FREQ.
358C:	B9	F4 36	>60 LDA AMUSVT,Y
358E:	C9	FF	>61 CMP #\$FF
3590:	F0	26	>62 BEQ MUS65
3592:	B9	97 36	>63 LDA AMUSFW,Y
3594:	30	02	>64 BMI MUS55
3596:	A2	04	>65 LDX #\$04
			>66 MUS55
3598:	86	15	>67 STX ATAWAV ;NEW WAVE.
359A:	85	17	>68 STA ATADIV ;NEW FREQ.
359C:	B9	F4 36	>69 LDA AMUSVT,Y
359E:	C9	FF	>70 CMP #\$FF
35A0:	F0	26	>71 BEQ MUS65
35A2:	B9	97 36	>72 LDA AMUSFW,Y
35A4:	30	02	>73 BMI MUS55
35A6:	A2	04	>74 LDX #\$04
			>75 MUS55
35A8:	86	15	>76 STX ATAWAV ;NEW WAVE.
35AA:	85	17	>77 STA ATADIV ;NEW FREQ.
35AC:	B9	F4 36	>78 LDA AMUSVT,Y
35AE:	C9	FF	>79 CMP #\$FF
35B0:	F0	26	>80 BEQ MUS65
35B2:	B9	97 36	>81 LDA AMUSFW,Y
35B4:	30	02	>82 BMI MUS55
35B6:	A2	04	>83 LDX #\$04
			>84 MUS55
35B8:	86	15	>85 STX ATAWAV ;NEW WAVE.
35BA:	85	17	>86 STA ATADIV ;NEW FREQ.
35BC:			

3591:	85	85	>62	STA	ADUR	:NEW DUR.
3593:	B9	F4	36	LDA	AMUSVT,Y	
3596:	4A		>64	LSR		
3597:	4A		>65	LSR		
3598:	4A		>66	LSR		
3599:	4A		>67	LSR		
359A:	4A		>68	LSR		
359B:	4A		>69	LSR		
359C:	AA		>70	TAX		
359D:	BD	0B	38	LDA	VOLTEL,X	
35A0:	85	19	>72	STA	ATAVOL	
35A2:	E6	86	>73	INC	AIDX	
35A4:	4C	E5	35	JMP	SND99	
			>75	MUS65		
35A7:	A2	00	>76	LDX	#0	
35A9:	86	19	>77	STX	ATAVOL	
35AB:	CA		>78	DEX		
35AC:	86	88	>79	STX	ADUR	:SONG OFF.
35AE:	D0	35	>80	BNE	SND99	
			>81	MUS75		
35B0:	C6	88	>82	DEC	ADUR	
35B2:	4C	E5	35	JMP	SND99	
			>84			
			>85	*****		
			>86	* NO MUSIC PLAYING,CHK SOUNDS *		
			>87	*****		
				SOUND		
35B5:	A4	88	>88	LDY	ADUR	
35B7:	30	2C	>89	BMI	SND99	:JP NO SOUND ON.
35B9:	D0	28	>90	BNE	SND80	:JP SOUND NOT DONE.
35BB:	A4	86	>91	LDY	AIDX	
35BD:	B9	0F	38	LDA	SNDTBL,Y	
35C0:	85	19	>93	STA	ATAVOL	
35C2:	D0	06	>94	BNE	SND5	:JP SND NOT OVER.
35C4:	A9	FF	>95	LDA	#\$FF	
35C6:	85	88	>96	STA	ADUR	
35C8:	D0	1B	>97	BNE	SND99	
			>98	SND5		
35CA:	4A		>99	LSR		
35CB:	4A		>100	LSR		
35CC:	4A		>101	LSR		
35CD:	4A		>102	LSR		
35CE:	85	15	>103	STA	ATAWAV	:NEW WAV.
35D0:	B9	10	38	LDA	SNDTBL+1,Y	
35D3:	85	17	>105	STA	ATADIV	:NEW FREQ.
35D5:	4A		>106	LSR		
35D6:	4A		>107	LSR		
35D7:	4A		>108	LSR		
35D8:	4A		>109	LSR		
35D9:	4A		>110	LSR		
35DA:	85	88	>111	STA	ADUR	:NEW DUR.
35DC:	E6	86	>112	INC	AIDX	
35DE:	E6	86	>113	INC	AIDX	:UP NOTE FTR.
35E0:	4C	E5	35	JMP	SND99	
			>115	SND80		
35E3:	C6	88	>116	DEC	ADUR	
			>117	SND99		
35E5:	60		>118	RTS		

```

49 *****
50 * POSITION LATCH VALUES FILE *
51 *****
52 PUT POSITION.TABLE
>1 */ POSITION VALUES, LASTED: 1/27/83
>2 * LAST EDIT 1/11/83
>3 ;
>4 *****
>5 * TABLE OF VALUES FOR POSITIONING
>6 * HI NIBBLE = INCREMENT
>7 * LO NIBBLE = COUNTDOWN DELAY BEFORE LATCH.
>8 *****
>9 POSTBL
>10 ;
>11 * POSITIONS 16 TO 25-->
>12 *****

35E6: 50 40 30
35E9: 20 10 00
35EC: F0 E0 D0 >13 DFB $50,$40,$30,$20,$10,$00,$F0,$E0,$D0
>14 ;
>15 * POSITIONS 26 TO 35-->
>16 *****

35EF: C0 B0 A0
35F2: 90 71 61
35F5: 51 41 31
35F8: 21 >17 DFB $C0,$B0,$A0,$90,$71,$61,$51,$41,$31,$21
>18 ;
>19 * POSITIONS 36 TO 45--->
>20 *****

35F9: 11 01 F1
35FC: E1 D1 C1
35FF: B1 A1 91
3602: 72 >21 DFB $11,$01,$F1,$E1,$D1,$C1,$B1,$A1,$91,$72
>22 ;
>23 * POSITIONS 46 TO 55--->
>24 *****

3603: 62 52 42
3606: 32 22 12
3609: 02 F2 E2
360C: D2 >25 DFB $62,$52,$42,$32,$22,$12,$02,$F2,$E2,$D2
>26 ;
>27 * POSITIONS 56 TO 65--->
>28 *****

360D: C2 B2 A2
3610: 92 73 63
3613: 53 43 33
3616: 23 >29 DFB $C2,$B2,$A2,$92,$73,$63,$53,$43,$33,$23
>30 ;
>31 * POSITIONS 66 TO 75-->
>32 *****

3617: 13 03 F3
361A: E3 D3 C3
361D: B3 A3 93
3620: 74 >33 DFB $13,$03,$F3,$E3,$D3,$C3,$B3,$A3,$93,$74
>34 ;
>35 * POSITIONS 76 TO 85-->
>36 *****

3621: 64 54 44
3624: 34 24 14
3627: 04 F4 E4
362A: D4 >37 DFB $64,$54,$44,$34,$24,$14,$04,$F4,$E4,$D4
>38 ;
>39 * POSITIONS 86 TO 95-->
>40 *****

362B: C4 B4 A4

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363E: 94 75 65
3631: 55 45 35
3634: 25 >41 DFB $C4,$B4,$A4,$94,$75,$65,$55,$45,$35,$25
>42 ;
>43 * POSITIONS 96 TO 105-->
>44 *****

3635: 15 05 F5
3638: E5 D5 C5
363B: B5 A5 95
363E: 76 >45 DFB $15,$05,$F5,$E5,$D5,$C5,$B5,$A5,$95,$76
>46 ;
>47 * POSITIONS 106 TO 115-->
>48 *****

363F: 66 56 46
3642: 36 26 16
3645: 06 F6 E6
3648: D6 >49 DFB $66,$56,$46,$36,$26,$16,$06,$F6,$E6,$D6
>50 ;
>51 * POSITIONS 116 TO 125-->
>52 *****

3649: C6 B6 A6
364C: 96 77 67
364F: 57 47 37
3652: 27 >53 DFB $C6,$B6,$A6,$96,$77,$67,$57,$47,$37,$27
>54 ;
>55 * POSITIONS 126 TO 135-->
>56 *****

3653: 17 07 F7
3656: E7 D7 C7
3659: B7 A7 97
365C: 78 >57 DFB $17,$07,$F7,$E7,$D7,$C7,$B7,$A7,$97,$78
>58 ;
>59 * POSITIONS 136 TO 145-->
>60 *****

365D: 68 58 48
3660: 38 28 18
3663: 08 F8 E8
3666: D8 >61 DFB $68,$58,$48,$38,$28,$18,$08,$F8,$E8,$D8
>62 ;
>63 ;
>64 *****
>65 * DATA PTR OFFSETS FOR IMAGES *
>66 * CROSSING BAND BOUNDARIES *
>67 *****
>68 TOPOFF

3667: 00 01 02
366A: 03 04 05
366D: 06 07 08 >69 DFB 0,1,2,3,4,5,6,7,8
3670: 09 0A 0B
3673: 0C 0D 0E
3676: 0F >70 DFB 9,10,11,12,13,14,15
>71 BOTOFF

3677: 12 11 10
367A: 0F 0E 0D >72 DFB 18,17,16,15,14,13
367D: 0C 0B 0A
3680: 09 08 07
3683: 06 >73 DFB 12,11,10,9,8,7,6
3684: 05 04 03 >74 DFB 5,4,3
>75 ;
>76 *****
>77 * TABLE OF INDEXES TO POSTBL *
>78 * FOR ACTUAL POS VALUES FOR *
>79 * CHERRIES. (POS 17-145). *
>80 *****
>81 CHRPOS

3687: 00 08 10

```


3680: 18 20 22
3680: 30 36 382
368F: 40 48 50
3692: 58 60 68
3695: 70 78 83
84

DFB 0, 8, 16, 24, 32, 40, 48, 56

DFB 64, 72, 80, 88, 96, 104, 112, 120
;

```

54 *****
55 * SOUND & MUSIC TABLES *
56 *****
57 PUT MR.DQ.SND TABLES
>1 */MR.DQ.SOUND TBLs LASTED 7/03/83.
>2 ;
>3 *****
>4 * MUSIC TABLES FOR CH. A-- *
>5 *****
>6 ;FREQ/WAVE TABLE-->
>7 ;B0-B4=FREQ.
>8 ;B7=WAVE
>9 ; 1=$0C
>10 ; 0=$04
>11 *****
>12 * CH. A FREQ/WAVE TBL--> *
>13 *****
>14 AMUSFW
>15 * SONG 1 = ORCHARD SONG-->
>16 AS1FW

3697: 13 00 0E
369A: 00 0F 00
369D: 11 00 13
36A0: 00 13 >17 DFB $13,$00,$0E,$00,$0F,$00,$11,$00,$13,$00,$13
36A2: 00 13 00
36A5: 13 00 16
36A8: 00 11 00
36AB: 13 00 >18 DFB $00,$13,$00,$13,$00,$16,$00,$11,$00,$13,$00
36AD: 16 00 17
36B0: 00 1A 00
36B3: 17 00 16
36B6: 00 >19 DFB $16,$00,$17,$00,$1A,0,$17,0,$16,$00
36B7: 13 00 11
36BA: 00 0E >20 DFB $13,$00,$11,$00,$0E
36BC: 00 0F 00
36BF: 0F 00 11
36C2: 00 0F 00
36C5: 13 00 >21 DFB $00,$0F,$00,$0F,$00,$11,$00,$0F,$00,$13,$00
36C7: FF >22 DFB $FF ;END OF SONG.
>23 * SONG 2 = END SONG-->
>24 *****
>25 AS2FW

36C8: 1A 00 11
36CB: 00 11 >26 DFB $1A,$0,$11,$0,$11
36CD: 00 14 00
36D0: 1A 00 >27 DFB $0,$14,$0,$1A,$0
36D2: 1A 00 11
36D5: 00 11 >28 DFB $1A,$0,$11,$0,$11
36D7: 00 14 00
36DA: 1A 00 >29 DFB $0,$14,$0,$1A,$0
36DC: 17 00 11
36DF: 00 11 >30 DFB $17,$0,$11,0,$11
36E1: 00 11 >31 DFB $00,$11
36E3: 00 1B 00
36E6: 1A >32 DFB $0,$1E,$0,$1A
36E7: FF >33 DFB $FF ;END OF SONG.
>34 * MR DQ DEAD SONG-->
>35 *****
>36 AS3FW

36E8: 0F 11 13
36EB: 16 17 >37 DFB $0F,$11,$13,$16,$17
36ED: 1A 1D 00
36F0: 13 00 >38 DFB $1A,$1D,$00,$13,$00
36F2: 0E >39 DFB $0E
36F3: FF >40 DFB $FF ;END OF SONG.

```

```

>41 *****
>42 * CH A VOLUME/TIME TABLE--> *
>43 *****
>44 AMUSVT
>45 ;B0-B5=TIME.
>46 ;B6-B7=IDX TO VOLTBTL.
>47 AS1VT

36F4: C6 02 C6
36F7: 02 C6 02
36FA: C6 02 C6
36FD: 02 C6 02 >48 DFB $C6,$02,$C6,$02,$C6,$02,$C6,$02,$C6,$02,$C6,$
02
3700: C6 02 C6
3703: 02 C6 02
3706: C6 02 C6
3709: 02 C6 02 >49 DFB $C6,$02,$C6,$02,$C6,$02,$C6,$02,$C6,$02,$C6,$
02
370C: D3 13 C6
370F: 02 C6 02
3712: C6 02 C6
3715: 02 C9 09 >50 DFB $D3,$13,$C6,$02,$C6,$02,$C6,$02,$C6,$02,$C9,$
09
3718: C9 09 C6
371B: 02 C6 02
371E: C6 02 C6
3721: 02 D3 13 >51 DFB $C9,$09,$C6,$02,$C6,$02,$C6,$02,$C6,$02,$D3,$
13
3724: FF >52 DFB $FF ;END OF SONG.
>53 ;
>54 * SONG2 = END SONG-->
>55 AS2VT

3725: CA 0A C7
3728: 01 C7 >56 DFB $CA,$0A,$C7,$01,$C7
372A: 01 CA 0A
372D: CA 0A >57 DFB $01,$CA,$0A,$CA,$0A
372F: CA 0A C7
3732: 01 C7 >58 DFB $CA,$0A,$C7,$01,$C7
3734: 01 CA 0A
3737: CA 0A >59 DFB $01,$CA,$0A,$CA,$0A
3739: CA 0A C7
373C: 01 C7 >60 DFB $CA,$0A,$C7,$01,$C7
373E: 01 D6 2E
3741: CA 0A >61 DFB $01,$D6,$2E,$CA,$0A
3743: CA >62 DFB $CA
3744: FF >63 DFB $FF ;END OF SONG.
>64 * NR DO DEAD SONG-->
>65 AS3VT

3745: C5 C5 C5
3748: C5 C5 >66 DFB $C5,$C5,$C5,$C5,$C5
374A: C5 C5 05
374D: C5 05 >67 DFB $C5,$C5,$05,$C5,$05
374F: C5 >68 DFB $C5
3750: FF >69 DFB $FF ;END OF SONG.
>70 *****
>71 * MUSIC TABLES FOR CH B--> *
>72 *****
>73 ;CH B FREQ/WAVE TBL-->
>74 *****
>75 * CH.B FREQ/WAVE TABLE--> *
>76 *****
>77 BMUSFW
>78 BS1FW

3751: 93 80 8F
3754: 80 9A 80
3757: 93 80 8F
375A: 80 91 79
375D: 80 8F 80
375F: 80 8F 80
3762: 80 8F 80
3765: 80 8F 80
3768: 80 8F 80
376B: 80 8F 80
376E: 80 8F 80
3771: 80 8F 80
3774: 80 8F 80
3777: 80 8F 80
377A: 80 8F 80
377D: 80 8F 80
377F: 80 8F 80
3782: 80 8F 80
3785: 80 8F 80
3788: 80 8F 80
378B: 80 8F 80
378E: 80 8F 80
3791: 80 8F 80
3794: 80 8F 80
3797: 80 8F 80
379A: 80 8F 80
379D: 80 8F 80
379F: 80 8F 80
37A2: 80 8F 80
37A5: 80 8F 80
37A8: 80 8F 80
37AB: 80 8F 80
37AE: 80 8F 80
37B1: 80 8F 80
37B4: 80 8F 80
37B7: 80 8F 80
37BA: 80 8F 80
37BD: 80 8F 80
37BF: 80 8F 80
37C2: 80 8F 80
37C5: 80 8F 80
37C8: 80 8F 80
37CB: 80 8F 80
37CE: 80 8F 80
37D1: 80 8F 80
37D4: 80 8F 80
37D7: 80 8F 80
37DA: 80 8F 80
37DD: 80 8F 80
37E0: 80 8F 80
37E3: 80 8F 80
37E6: 80 8F 80
37E9: 80 8F 80
37EC: 80 8F 80
37EF: 80 8F 80
37F2: 80 8F 80
37F5: 80 8F 80
37F8: 80 8F 80
37FB: 80 8F 80
37FE: 80 8F 80
37FF: 80 8F 80

```

3750:	80 8E 80		
375F:	9A 80 93		
3762:	80 8F 80		
3765:	94 80	>80	DFB \$80,\$8E,\$80,\$9A,\$80,\$93,\$80,\$8F,\$80,\$94,\$80
3767:	91 80 8E		
376A:	80 8B 80		
376D:	8C 80 8E		
3770:	80 8F	>81	DFB \$91,\$80,\$8E,\$80,\$8B,\$80,\$8C,\$80,\$8E,\$80,\$8F
3772:	80 91 80		
3775:	94 80 91		
3778:	80 8C 80		
377B:	8E 80	>82	DFB \$80,\$91,\$80,\$94,\$80,\$91,\$80,\$8C,\$80,\$8E,\$80
377D:	8F 80 91		
3780:	80	>83	DFB \$8F,\$80,\$91,\$80
3781:	FF	>84	DFB \$FF ;END OF SONG1.
		>85	BS2FW
3782:	8D 80 8B		
3785:	80 8D	>86	DFB \$8D,\$80,\$8B,\$80,\$8D
3787:	80 8B 80		
378A:	8D 80	>87	DFB \$80,\$8B,\$80,\$8D,\$80
378C:	8B 80 8D		
378F:	80 8B	>88	DFB \$8B,\$80,\$8D,\$80,\$8B
3791:	80 8F 80		
3794:	8B 80	>89	DFB \$80,\$8F,\$80,\$8B,\$80
3796:	8B 80 97		
3799:	80 97	>90	DFB \$8B,\$80,\$97,\$80,\$97
379B:	80 97 80		
379E:	97 80	>91	DFB \$80,\$97,\$80,\$97,\$80
37A0:	91	>92	DFB \$91
37A1:	FF	>93	DFB \$FF ;END OF SONG.
		>94	* MR DO DEAD SONG-->
		>95	BS3FW
37A2:	0F 11 13		
37A5:	16 17	>96	DFB \$0F,\$11,\$13,\$16,\$17
37A7:	1A 1D 00		
37AA:	13 00	>97	DFB \$1A,\$1D,\$00,\$13,\$00
37AC:	0E	>98	DFB \$0E
37AD:	FF	>99	DFB \$FF ;END OF SONG.
		>100	*****
		>101	* CH. B MUSIC VOL/TIME TBL *
		>102	*****
		>103	BMUSVT
		>104	BS1VT
37AE:	06 02 09		
37B1:	09 06 02		
37B4:	09 09 09		
37B7:	09 06 02	>105	DFB \$06,\$02,\$09,\$09,\$06,\$02,\$09,\$09,\$09,\$09,\$06,\$02
37BA:	09 09 06		
37BD:	02 09 09		
37C0:	09 09 06		
37C3:	02 09 09	>106	DFB \$09,\$09,\$06,\$02,\$09,\$09,\$09,\$09,\$06,\$02,\$09,\$09
37C6:	06 02 06		
37C9:	02 06 02		
37CC:	06 02 06		
37CF:	02 06 02	>107	DFB \$06,\$02,\$06,\$02,\$06,\$02,\$06,\$02,\$06,\$02,\$06,\$02
37D2:	09 09 06		
37D5:	02 06 02		
37D8:	06 02 06		
37DB:	02	>108	DFB \$09,\$09,\$06,\$02,\$06,\$02,\$06,\$02,\$06,\$02
37DC:	06 02	>109	DFB \$06,\$02
37DE:	FF	>110	DFB \$FF ;END OF SONG1.
		>111	BS2VT
37DF:	8A 0A 8A		

37E2:	0A 8A	>112	DFB	\$8A, \$0A, \$8A, \$0A, \$8A
37E4:	0A 8A 0A			
37E7:	8A 0A	>113	DFB	\$0A, \$8A, \$0A, \$8A, \$0A
37E9:	8A 0A 8A			
37EC:	0A 8A	>114	DFB	\$8A, \$0A, \$8A, \$0A, \$8A
37EE:	0A 8A 0A			
37F1:	8A 0A	>115	DFB	\$0A, \$8A, \$0A, \$8A, \$0A
37F3:	8A 0A 87			
37F6:	01 87	>116	DFB	\$8A, \$0A, \$87, \$01, \$87
37F8:	01 8A 0A			
37FB:	8A 0A	>117	DFB	\$01, \$8A, \$0A, \$8A, \$0A
37FD:	8A	>118	DFB	\$8A
37FE:	FF	>119	DFB	\$FF ;END OF SONG.
		>120	* MF DO DEAD SONG-	
		>121	BSEVT	
37FF:	05 05 05			
3802:	05 05	>122	DFB	\$05, \$05, \$05, \$05, \$05
3804:	05 05 05			
3807:	05 05	>123	DFB	\$05, \$05, \$05, \$05, \$05
3809:	05	>124	DFB	\$05
380A:	FF	>125	DFB	\$FF ;END OF SONG.
		>126	VOLTBL	
380B:	00 0A 0B			
380E:	0C	>127	DFB	0, 10, 11, 12
		>128		
		>129	*****	
		>130	* DATA STRUCTURE FOR SOUNDS--> *	
		>131	* BYTE 1: B0-B3= VOLUME *	
		>132	* B4-B7= WAVEFORM *	
		>133	* BYTE 2: B0-B4= FREQ DIVISOR *	
		>134	* B5-B7= 3 BIT DURATION*	
		>135	* WHEN VOLUME=0, SOUND DONE *	
		>136	*****	
		>137	SNDTBL	
		>138	DEADSND	
380F:	88 F5 87			
3812:	FA	>139	DFB	\$88, \$F5, \$87, \$FA
3813:	88 F1 00			
3814:	00	>140	DFB	\$88, \$F1, 0, 0
		>141	BEEP	
3817:	48 7B	>142	DFB	\$48, \$7B
3819:	44 7B	>143	DFB	\$44, \$7B
381D:	00 00	>144	DFB	0, 0
		>145	BOOF	
381D:	48 73	>146	DFB	\$48, \$73
381F:	44 73	>147	DFB	\$44, \$73
3821:	00 00	>148	DFB	0, 0
		>149	BELLS	
3823:	49 63	>150	DFB	\$49, \$63
3825:	49 EA	>151	DFB	\$49, \$EA
3827:	49 E7	>152	DFB	\$49, \$E7
3829:	00 00	>153	DFB	0, 0
		>154	CHER1	
382B:	4B 7D	>155	DFB	\$4B, \$7D
382D:	4B 6E	>156	DFB	\$4B, \$6E
382F:	4B 7D	>157	DFB	\$4B, \$7D
3831:	4B 6E	>158	DFB	\$4B, \$6E
3833:	4B 7D	>159	DFB	\$4B, \$7D
3835:	4B 7D	>160	DFB	\$4B, \$7D
3837:	00	>161	DFB	0
		>162	CHER2	
3838:	4B 7A	>163	DFB	\$4B, \$7A
383A:	4B 6C	>164	DFB	\$4B, \$6C
383C:	4B 7A	>165	DFB	\$4B, \$7A
383E:	4B 6C	>166	DFB	\$4B, \$6C
3840:	4B 7A	>167	DFB	\$4B, \$7A

3842:	4B 6C	>168	DFB	\$4B, \$6C
3844:	00	>169	DFB	0
		>170	CHER3	
3845:	4B 77	>171	DFB	\$4B, \$77
3847:	4B 6B	>172	DFB	\$4B, \$6B
3849:	4B 77	>173	DFB	\$4B, \$77
384B:	4B 6B	>174	DFB	\$4B, \$6B
384D:	4B 77	>175	DFB	\$4B, \$77
384F:	4B 6B	>176	DFB	\$4B, \$6B
3851:	00	>177	DFB	0
		>178	CHER4	
3852:	4B 75	>179	DFB	\$4B, \$75
3854:	4B 6A	>180	DFB	\$4B, \$6A
3856:	4B 75	>181	DFB	\$4B, \$75
3858:	4B 6A	>182	DFB	\$4B, \$6A
385A:	4B 75	>183	DFB	\$4B, \$75
385C:	4B 6A	>184	DFB	\$4B, \$6A
385E:	00	>185	DFB	0
		>186	CHER5	
385F:	4B 73	>187	DFB	\$4B, \$73
3861:	4B 69	>188	DFB	\$4B, \$69
3863:	4B 73	>189	DFB	\$4B, \$73
3865:	4B 69	>190	DFB	\$4B, \$69
3867:	4B 73	>191	DFB	\$4B, \$73
3869:	4B 69	>192	DFB	\$4B, \$69
386B:	00	>193	DFB	0
		>194	CHER6	
386C:	4B 71	>195	DFB	\$4B, \$71
386E:	4B 68	>196	DFB	\$4B, \$68
3870:	4B 71	>197	DFB	\$4B, \$71
3872:	4B 68	>198	DFB	\$4B, \$68
3874:	4B 71	>199	DFB	\$4B, \$71
3876:	4B 68	>200	DFB	\$4B, \$68
3878:	00	>201	DFB	0


```

59          JBJ $8894
60          ORG $3890
61          *****
62          * DIGIT DATA FILE *
63          *****
64          PUT MR.DO.DIGITS
>1          */MR.DO.DATA LASTED 5/15/83
>2          *.....DIGITS.....
>3          DATA1
>4          DIGITS
>5          *
>6          ZERO

3890: 00 1C 22
3893: 63 63 63
3896: 22 1C      >7          DFB $00,$1C,$22,$63,$63,$63,$22,$1C
                                >8          ONE

3898: 00 7F 0C
389B: 0C 0C 1C
389E: 0C 04      >9          DFB $00,$7F,$0C,$0C,$0C,$1C,$0C,$04
                                >10         TWO

38A0: 00 7F 60
38A3: 60 3E 03
38A6: 03 3E      >11         DFB $00,$7F,$60,$60,$3E,$03,$03,$3E
                                >12         THREE

38A8: 00 7E 03
38AB: 03 3E 03
38AE: 03 7E      >13         DFB $00,$7E,$03,$03,$3E,$03,$03,$7E
                                >14         FOUR

38B0: 00 06 7F
38B3: 26 16 0E
38B6: 06 02      >15         DFB $00,$06,$7F,$26,$16,$0E,$06,$02
                                >16         FIVE

38B8: 00 7E 03
38BB: 03 3E 60
38BE: 60 7E      >17         DFB $00,$7E,$03,$03,$3E,$60,$60,$7E
                                >18         SIX

38C0: 00 3E 63
38C3: 63 7E 60
38C6: 60 3E      >19         DFB $00,$3E,$63,$63,$7E,$60,$60,$3E
                                >20         SEVEN

38C8: 00 30 18
38CB: 0C 06 03
38CE: 61 7F      >21         DFB $00,$30,$18,$0C,$06,$03,$61,$7F
                                >22         EIGHT

38D0: 00 3E 63
38D3: 63 3E 63
38D6: 63 3E      >23         DFB $00,$3E,$63,$63,$3E,$63,$63,$3E
                                >24         NINE

38D8: 00 3E 03
38DB: 03 3F 63
38DE: 63 3E      >25         DFB $00,$3E,$03,$03,$3F,$63,$63,$3E
38E0: 00 00 00
38E3: 00 00 00
38E6: 00 00      >26         BLANK DFB 0,0,0,0,0,0,0,0
                                >27         *
                                >28         SCORTB

38E8: 90 98 A0
38EB: A8 B0      >29         DFB <ZERO,<ONE,<TWO,<THREE,<FOUR
38ED: B8 C0 CB
38F0: D0 DB      >30         DFB <FIVE,<SIX,<SEVEN,<EIGHT,<NINE

```

```

66          DBC  $8904
67          DRG  $3900
68          *****
69          * SPRITE B IMAGE DATA FILE          *
70          *****
71          FUT  MR.DO.SPRITEB IMAGES
>1          */MR.DO.SB IMAGES LASTED 7/06/83.
>2          ;
>3          ;
>4          * SPRITE B IMAGES-->
>5          *****
>6          SBIMG
>7          CHERRY
3900: 00    >8          DFB  0
3901: 00    >9          DFB  0
3902: 00   >10         DFB  0
3903: 00   >11         DFB  0
3904: 42   >12         DFB  $42
3905: E7   >13         DFB  $E7
3906: EF   >14         DFB  $EF
3907: E7   >15         DFB  $E7
3908: 42   >16         DFB  $42
3909: 24   >17         DFB  $24
390A: 14   >18         DFB  $14
390B: 0C   >19         DFB  $0C
390C: 04   >20         DFB  $04
390D: 00   >21         DFB  0
390E: 00   >22         DFB  0
390F: 00   >23         DFB  0
3910: 00   >24         DFB  0
3911: 00   >25         DFB  0
>26          ;
>27          * MR DO, LEFT FOOT DOWN, FACING LEFT, EYES OPEN.
3912: 00 00 00
3915: 00 00 00
3918: 00 00   >28         DFB  0,0,0,0,0,0,0,0
391A: 00 00 00
391D: 00 00 00
3920: 00 00   >29         DFB  0,0,0,0,0,0,0,0
>30          MRDOLL
3922: 00   >31         DFB  0
3923: 00 44 4C
3926: 30 38   >32         DFB  $C0,$44,$4C,$30,$38
3928: 78 F8 F8
392B: 30 70   >33         DFB  $78,$F8,$F8,$30,$70
392D: 58 5D 7E
3930: 38 10   >34         DFB  $58,$5D,$7E,$38,$10
3932: 00   >35         DFB  0
3933: 00   >36         DFB  0
>37          ;
>38          NULLB
3934: 00 00 00
3937: 00 00 00
393A: 00 00   >39         DFB  0,0,0,0,0,0,0,0
393C: 00 00 00
393F: 00 00 00
3942: 00 00   >40         DFB  0,0,0,0,0,0,0,0
>41          * MR DO RIGHT FOOT DOWN, FACING LEFT, EYES CLOSED.
>42          MRDORL
3944: 00   >43         DFB  0
3945: 68 38 30
3948: 30 38   >44         DFB  $68,$38,$30,$30,$38
394A: 78 F8 F8
394D: 30 70   >45         DFB  $78,$F8,$F8,$30,$70
394F: 58 5C 7E

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3952:	39	10	>46	DFB	\$58,\$50,\$7E,\$39,\$10
3954:	00		>47	DFB	0
3955:	00		>48	DFB	0
			>49		:
3956:	00	00	00		
3959:	00	00	00		
395C:	00	00	>50	DFB	0,0,0,0,0,0,0,0
395E:	00	00	00		
3961:	00	00	00		
3964:	00	00	>51	DFB	0,0,0,0,0,0,0,0
			>52	* MR DO RIGHT FOOT DOWN, FACING RIGHT, EYES CLOSED.	
			>53	*****	
			>54	MRDDFR	
3966:	00		>55	DFB	0
3967:	03	22	32		
396A:	0C	1C	>56	DFB	\$03,\$22,\$32,\$0C,\$1C
396C:	1E	1F	1F		
396F:	0C	0E	>57	DFB	\$1E,\$1F,\$1F,\$0C,\$0E
3971:	1A	BA	7E		
3974:	1C	08	>58	DFB	\$1A,\$BA,\$7E,\$1C,\$08
3976:	00		>59	DFB	0
3977:	00		>60	DFB	0
			>61		:
3978:	00	00	00		
397B:	00	00	00		
397E:	00	00	>62	DFB	0,0,0,0,0,0,0,0
3980:	00	00	00		
3983:	00	00	00		
3986:	00	00	>63	DFB	0,0,0,0,0,0,0,0
			>64	* MR DO LEFT FOOT DOWN, FACING RIGHT, EYES OPEN.	
			>65	MRDOLR	
3988:	00		>66	DFB	0
3989:	16	1C	0C		
398C:	0C	1C	>67	DFB	\$16,\$1C,\$0C,\$0C,\$1C
398E:	1E	1F	1F		
3991:	0C	0E	>68	DFB	\$1E,\$1F,\$1F,\$0C,\$0E
3993:	1A	3A	7E		
3996:	7C	08	>69	DFB	\$1A,\$3A,\$7E,\$7C,\$08
3998:	00		>70	DFB	0
3999:	00		>71	DFB	0
			>72		:
399A:	00	00	00		
399D:	00	00	00		
39A0:	00	00	>73	DFB	0,0,0,0,0,0,0,0
39A2:	00	00	00		
39A5:	00	00	00		
39AB:	00	00	>74	DFB	0,0,0,0,0,0,0,0

```

73 *****
74 * ADDRESS PTRS FOR WORDS *
75 *****
76 PUT MR.DO.ADDRESS PTRS
>1 */ MR.DO ADDR PTRS LASTED 7/28/83.
>2 *
>3 * LOW BYTE ADDRESSES FOR WORDS-->
>4 *****
>5 * WORD "COLECO"
>6 *****
>7 WORDS
39AA: 70 80 78
39AD: 30 70 80 >8 COLECO DFB <LC,<LO,<LL,<LE,<LC,<LO
>9 * WORD "PRESENTS"
>10 *****
39B0: 88 90 98
39B3: A0 A8 B0 >11 PRESENT DFB <LPR,<LE2,<LSE,<LN,<LTS,<LS
>12 ;
>13 * WORD "MR DO!"
>14 *****
>15 MRDOT1
>16 DFB <NULL
39B6: 88
39B7: 00 18 20
39BA: 28 B8 B8 >17 MRDOTB DFB <LM,<SMNR,<LD,<LOH,<NULL,<NULL
>18 * NULL WORD-->
>19 *****
>20 NULLTB
39BD: B8 B8 B8
39C0: B8 B8 B8 >21 DFB <NULL,<NULL,<NULL,<NULL,<NULL,<NULL
>22 * WORD "GAME"--->
>23 *****
>24 GAMETB
39C3: B8 C2 60
39C6: 00 30 B8 >25 DFB <NULL,<LG,<LA,<LM,<LE,<NULL
>26 * WORD "OVER"--->
>27 *****
>28 OVERTB
39C9: B8 80 CB
39CC: 30 08 B8 >29 DFB <NULL,<LO,<LV,<LE,<LR,<NULL
>30 * WORD "EXTRA"
>31 *****
39CF: B8 30 40
39D2: 50 08 60 >32 LETTBL DFB <NULL,<LE,<LX,<LT,<LR,<LA
>33 * WORD EXTRA IN REVERSE VIDEO
>34 *****
>35 REVTBL
39D5: B8 38 48 >36 DFB <NULL,<REVE,<REVS
39D8: 58 10 68 >37 DFB <REVT,<REVR,<REVA
>38 ;
>39 ;
>40 *****
>41 * LOAD PTRS FOR 6 SPRITES--> *
>42 * X = HI PTR FOR WHERE DATA IS *
>43 * A = LO ADDR OF TBL WHERE LO *
>44 * BYTE PTRS ARE *
>45 *****
>46 SPRIT6
39DB: 85 EF >47 STA TEMP1
39DD: A9 39 >48 LDA #>WORDS
39DF: 85 F0 >49 STA TEMP2
39E1: 86 F1 >50 STX TEMP3
39E3: A0 05 >51 LDY #5
39E5: A2 0B >52 LDX #11
>53 SPR6
39E7: A5 F1 >54 LDA TEMP3

```

39F9: 95 F2 >55
39EB: CA >56
39EC: B1 EF >57
39EE: 95 F2 >58
39F0: CA >59
39F1: B8 >60
39F2: 10 F3 >61
39F4: 60 >62
>63
>64

LDX 7E,XD
STA PD100K,X
DEX
LDA (TEMP1),Y
STA PD100K,X
DEX
DEY
BFL SPR6
RTS

;
;
;

```

78          D3J  $8A04
79          ORG  $3A00
80          *****
81          * SPRITE A IMAGES (PAGE 1)      *
82          *****
83          PUT  MR.DO.SA  IMG1
>1          */MR.DO.SA IMG1 LASTED 8/3/83.
>2          ;
>3          *-----*
>4          ;
>5          * SPRITE A IMAGE DATA-->
>6          *****
>7          * SA IMAGES ARE ON 2 PAGES,      *
>8          * IMG1 & IMG2. DURING ORCHARD    *
>9          * PAINTING, EACH BANDS HI DATA *
>10         * PTR (PAGE) IS GOVERNED BY      *
>11         * ITS RESPECTIVE BIT IN PTR.     *
>12         * IF BIT = 1 THEN IMG IS ON      *
>13         * IMG2 PAGE, ELSE ITS ON IMG1    *
>14         * PAGE.                          *
>15         *****
>16         IMG1
>17         * APPLE SITTING STEADY-->
>18         *****
>19         APPLE0
>20         APPLE1
>21         DFB  0
>22         DFB  0
>23         DFB  %00100100
>24         DFB  %01111110
>25         DFB  %01111110
>26         DFB  %11111111
>27         DFB  %11111111
>28         DFB  %11111111
>29         DFB  %01100111
>30         DFB  %00101010
>31         DFB  %00001000
>32         DFB  %00000100
>33         DFB  0
>34         DFB  0
>35         ;
>36         * APPLE ROCKING LEFT-->
>37         *****
>38         APPLE2
>39         DFB  0,0
>40         DFB  $10,$36,$7F,$FF,$FF
>41         DFB  $FF,$67,$2A,$08,$10
>42         DFB  0,0
>43         * APPLE ROCKING RIGHT-->
>44         *****
>45         APPLE3
>46         DFB  0,0
>47         DFB  $08,$6C,$FE,$FF,$FF
>48         DFB  $FF,$E6,$54,$10,$08
>49         DFB  0,0
>50         * APPLE BREAKING STAGE 1->>
>51         *****
>52         APPLE4
>53         DFB  0,0
>54         DFB  $18,$3C,$E7,$C3,$C7

```

3A00: 00
3A01: 00
3A02: 24
3A03: 7E
3A04: 7E
3A05: FF
3A06: FF
3A07: FF
3A08: 67
3A09: 2A
3A0A: 08
3A0B: 04
3A0C: 00
3A0D: 00

3A0E: 00 00
3A10: 10 36 7F
3A13: FF FF
3A15: FF 67 2A
3A18: 08 10
3A1A: 00 00

3A1C: 00 00
3A1E: 08 6C FE
3A21: FF FF
3A23: FF E6 54
3A26: 10 08
3A28: 00 00

3A2A: 00 00
3A2C: 18 3C E7
3A2F: C3 C3
3A31: B1 B1 00


```

3A31: 81 81 00
3A34: 00 00 >55 DFB $81,$81,$00,$00,$00
3A36: 00 00 >56 DFB 0,0
;
>57
>58 * APPLE BREAKING STAGE 2-->
>59 *****
>60 APPLE5
3A38: 00 00 >61 DFB 0,0
>62 AFEND
3A3A: 3C E7 C3
3A3D: 81 00 >63 DFB $3C,$E7,$C3,$81,$00
>64
3A3F: 00 00 00
3A42: 00 00 00
3A45: 00 00 >65 DFB 0,0,0,0,0,0,0,0
3A47: 00 00 00
3A4A: 00 00 00
3A4D: 00 00 >66 DFB 0,0,0,0,0,0,0,0
>67
>68 * DIG FACING LEFT,RIGHT FOOT DOWN-->
>69 *****
>70 DIGLR
3A4F: 00 >71 DFB 0
3A50: 0C 08 38
3A53: 28 7E >72 DFB $0C,$08,$38,$28,$7E
3A55: C2 47 28
3A58: 28 C8 >73 DFB $C2,$47,$28,$28,$C8
3A5A: 86 92 92
3A5D: 84 78 >74 DFB $86,$92,$92,$84,$78
3A5F: 00 >75 DFB 0
3A60: 00 00 00
3A63: 00 00 00
3A66: 00 00 >76 DFB 0,0,0,0,0,0,0,0
3A68: 00 00 00
3A6B: 00 00 00
3A6E: 00 00 >77 DFB 0,0,0,0,0,0,0,0
>78
>79 * DIGGER FACING LEFT LEFT FOOT DOWN-->
>80 *****
>81 DIGLL
3A70: 00 >82 DFB 0
3A71: 30 20 2C
3A74: 28 7C >83 DFB $30,$20,$2C,$28,$7C
3A76: C4 44 22
3A79: 2F C8 >84 DFB $C4,$44,$22,$2F,$C8
3A7B: 86 82 92
3A7E: 84 78 >85 DFB $86,$82,$92,$84,$78
3A80: 00 >86 DFB 0
3A81: 00 00 00
3A84: 00 00 00
3A87: 00 00 >87 DFB 0,0,0,0,0,0,0,0
3A89: 00 00 00
3A8C: 00 00 00
3A8F: 00 00 >88 DFB 0,0,0,0,0,0,0,0
3A91: 00 >89 DFB 0
>90
>91 * DIGGING FACING RIGHT-->
>92 DUGLL
3A92: 00 >93 DFB 0
3A93: 2A 3E 7F
3A96: EA CA >94 DFB $2A,$3E,$7F,$EA,$CA
3A98: 80 80 CA
3A9B: EB FF >95 DFB $80,$80,$CA,$EB,$FF
3A9D: 7E 66 55
3AA0: 55 77 >96 DFB $7E,$66,$55,$55,$77
3AA2: 00 >97 DFB 0

```

3A83:	00 00 00	>98	DFB	0,0,0,0,0	
3A85:	00 00 00				
3A8B:	00 00 00	>99	DFB	0,0,0,0,0	
3AAD:	00 00 00				
3AB0:	00 00 00	>100	DFB	0,0,0,0,0	
3AB2:	00 00 00	>101	DFB	0,0	
		>102			
		>103			;TEMP DIGGING IMG-->
3AB4:	00 00 00	>104	DFB	0	
3AB5:	54 54 3E				
3AB8:	7F CA	>105	DFB	\$54,\$54,\$3E,\$7F,\$CA	
3ABA:	80 CA EB				
3ABD:	FF 7E	>106	DFB	\$80,\$CA,\$EB,\$FF,\$7E	
3ABF:	4C 55 55				
3AC2:	55 77	>107	DFB	\$4C,\$55,\$55,\$55,\$77	
3AC4:	00 00 00	>108	DFB	0	
3AC5:	00 00 00				
3AC8:	00 00 00				
3ACB:	00 00 00	>109	DFB	0,0,0,0,0,0,0,0,0	
3ACD:	00 00 00				
3AD0:	00 00 00				
3AD3:	00 00 00	>110	DFB	0,0,0,0,0,0,0,0,0	
3AD5:	00 00 00				
3AD8:	00 00 00	>111	DFB	0,0,0,0,0	
3ADA:	00 00 00				
3ADD:	00 00 00	>112	DFB	0,0,0,0,0	
3ADF:	00 00 00				
3AE2:	00 00 00	>113	DFB	0,0,0,0,0	
		>114			NULL1
3AE4:	00 00 00				
3AE7:	00 00 00	>115	DFB	0,0,0,0,0	
3AE9:	00 00 00				
3AEC:	00 00 00	>116	DFB	0,0,0,0,0	
3AEE:	00 00 00				
3AF1:	00 00 00	>117	DFB	0,0,0,0,0	
3AF3:	00 00 00	>118	DFB	0,0,0	
		>119			

```

85          CBO $8E04
86          DRO $CE00
87          *****
88          * SPRITE A IMAGES (PAGE 2) *
89          *****
90          PUT MR.DO.SA IMG2
>1          */MR.DO.SA IMG2 LASTED 8/3/83.
>2
>3          *-----*
>4          * ALPHA MONSTER IMAGES--->
>5          *****
>6          IMG2
>7                                     ;DRG $3B40->
>8          * DIGGING FACING LEFT-->
>9          DUGRR
3B00: 00 00 >10          DFB 0,0
3B02: C2 66 FC
3B05: F8 AC >11          DFB $C2,$66,$FC,$F8,$AC
3B07: A6 02 0A
3B0A: 0E AC >12          DFB $A6,$02,$0A,$0E,$AC
3B0C: AC F8 7B
3B0F: 30 00 >13          DFB $AC,$F8,$7B,$30,$00
3B11: 00 00 00
3B14: 00 00 >14          DFB 0,0,0,0,0
3B16: 00 00 00
3B19: 00 00 >15          DFB 0,0,0,0,0
3B1B: 00 00 00
3B1E: 00 00 >16          DFB 0,0,0,0,0
>17          DUGRL
3B20: 00 00 00
3B23: 00 >18          DFB 0,0,0,0,0
3B24: 38 18 18
3B27: 38 7C >19          DFB $38,$18,$18,$38,$7C
3B29: E6 A6 06
3B2C: A6 FC >20          DFB $E6,$A6,$06,$A6,$FC
3B2E: 7C 38 >21          DFB $7C,$38
3B30: 00 00 00
3B33: 00 00 >22          DFB 0,0,0,0,0
3B35: 00 00 00
3B38: 00 00 >23          DFB 0,0,0,0,0
3B3A: 00 00 00
3B3D: 00 00 >24          DFB 0,0,0,0,0
3B3F: 00 00 >25          DFB 0,0
3B41: 00 00 00
3B44: 00 >26          DFB 0,0,0,0,0
3B45: 00 00 00
3B48: 00 >27          DFB 0,0,0,0,0
>28          LETRE
>29          DFB 0 ;LETTER E
3B4A: C3 66 7E
3B4D: 42 81 >30          DFB $C3,$66,$7E,$42,$81
3B4F: B0 B1 B1
3B52: BD B1 >31          DFB $BD,$B1,$B1,$BD,$B1
3B54: B1 BD 81
3B57: 42 3C >32          DFB $B1,$BD,$81,$42,$3C
3B59: 00 00 00
3B5C: 00 00 >33          DFB 0,0,0,0,0
3B5E: 00 00 00
3B61: 00 00 >34          DFB 0,0,0,0,0
3B63: 00 00 00
3B66: 00 00 >35          DFB 0,0,0,0,0
3B68: 00 00 >36          DFB 0,0
>37          LETRX
>38          DFB 0 ;LETTER X
3B6A: 00
3B6B: C3 66 7E

```

3B70:	A5 A5 A5		DFB	\$A5, \$A5, \$A5, \$99, \$99
3B73:	99 99	>40	DFB	\$A5, \$A5, \$81, \$42, \$3C
3B75:	A5 A5 81		DFB	0, 0, 0, 0, 0
3B78:	42 3C	>41	DFB	0, 0, 0, 0, 0
3B7A:	00 00 00		DFB	0, 0, 0, 0, 0
3B7D:	00 00	>42	DFB	0, 0, 0, 0, 0
3B7F:	00 00 00		DFB	0, 0, 0, 0, 0
3B82:	00 00	>43	DFB	0, 0, 0, 0, 0
3B84:	00 00 00		DFB	0, 0, 0, 0, 0
3B87:	00 00	>44	DFB	0, 0
3B89:	00 00	>45	DFB	
		>46		
3B8B:	00	>47	DFB	0 ; LETTER T
3B8C:	C3 66 7E		DFB	\$C3, \$66, \$7E, \$42, \$81
3B8F:	42 81	>48	DFB	\$99, \$99, \$99, \$99, \$99
3B91:	99 99 99		DFB	\$99, \$BD, \$81, \$42, \$3C
3B94:	99 99	>49	DFB	0, 0, 0, 0, 0
3B96:	99 BD 81		DFB	0, 0, 0, 0, 0
3B99:	42 3C	>50	DFB	0, 0, 0, 0, 0
3B9B:	00 00 00		DFB	0, 0, 0, 0, 0
3B9E:	00 00	>51	DFB	0, 0, 0, 0, 0
3BA0:	00 00 00		DFB	0, 0, 0, 0, 0
3BA3:	00 00	>52	DFB	0, 0, 0, 0, 0
3BA5:	00 00 00		DFB	0, 0
3BA8:	00 00	>53	DFB	
3BAA:	00 00	>54	DFB	
		>55		
3BAC:	00	>56	DFB	0 ; LETTER R.
3BAD:	C3 66 7E		DFB	\$C3, \$66, \$7E, \$42, \$81
3BAF:	42 81	>57	DFB	\$B5, \$B5, \$B9, \$B5, \$B5
3BB2:	B5 B5 B9		DFB	\$B5, \$B9, \$81, \$42, \$3C
3BB5:	B5 B5	>58	DFB	0, 0, 0, 0, 0
3BB7:	B5 B9 81		DFB	0, 0, 0, 0, 0
3BBA:	42 3C	>59	DFB	0, 0, 0, 0, 0
3BBC:	00 00 00		DFB	0, 0, 0, 0, 0
3BBF:	00 00	>60	DFB	0, 0, 0, 0, 0
3BC1:	00 00 00		DFB	0, 0, 0, 0, 0
3BC4:	00 00	>61	DFB	0, 0, 0, 0, 0
3BC6:	00 00 00		DFB	0, 0, 0, 0, 0
3BC9:	00 00	>62	DFB	0, 0
3BCB:	00 00	>63	DFB	
		>64		
3BCD:	00	>65	DFB	0 ; LETTER A
3BCE:	C3 66 7E		DFB	\$C3, \$66, \$7E, \$42, \$81
3BD1:	42 81	>66	DFB	\$A5, \$A5, \$BD, \$A5, \$A5
3BD3:	A5 A5 BD		DFB	\$A5, \$99, \$81, \$42, \$3C
3BD6:	A5 A5	>67	DFB	0, 0, 0, 0, 0
3BD8:	A5 99 81		DFB	0, 0, 0, 0, 0
3BDB:	42 3C	>68	DFB	0, 0, 0, 0, 0
3BDD:	00 00 00		DFB	0, 0, 0, 0, 0
3BE0:	00 00	>69	DFB	0, 0, 0, 0, 0
3BE2:	00 00 00		DFB	0, 0, 0, 0, 0
3BE5:	00 00	>70	DFB	0, 0, 0, 0, 0
3BE7:	00 00 00		DFB	0, 0, 0, 0, 0
3BEA:	00 00	>71	DFB	
		>72		
3BEC:	00 00 00		DFB	0, 0, 0, 0, 0
3BEF:	00 00	>73	DFB	

```

92          QBJ  $BC04
93          ORG  $3C00
94          *****
95          * LETTER IMAGE TABLES *
96          *****
97          PUT  MR.DO.LETTER TABLES
>1          */MR.DO.LETTER TBLS LASTED 7/29/83
>2          ;
>3          DATA2
>4          LETTRS

3C00: 00 41 41
3C03: 41 49 55
3C06: 63 41 >5          LM          DFB  0,$41,$41,$41,$49,$55,$63,$41
>6          * LETTER "R"

3C08: 00 43 46
3C0B: 4C 7E 41
3C0E: 41 7E >7          LR          DFB  0,$43,$46,$4C,$7E,$41,$41,$7E
>8          * REVERSE "R"
>9          REVR

3C10: 00 43 B9 >10         DFB  0,$FF-$43,$FF-$46
3C13: B3 81 >11         DFB  $FF-$4C,$FF-$7E
3C15: BE 41 >12         DFB  $FF-$41,$FF-$41
3C17: 31 >13         DFB  $FF-$7E
>14          * SMALL "R"
>15          SMLR

3C18: 00 40 40
3C1B: 40 48 78
3C1E: 40 00 >16         DFB  0,$40,$40,$40,$48,$78,$40,0
>17          * LETTER "D"

3C20: 00 78 44
3C23: 44 44 44
3C26: 44 78 >18         LD          DFB  0,$78,$44,$44,$44,$44,$44,$78
>19          * LETTERS "D"
>20          LOH

3C28: 00 62 90
3C2B: 92 92 93
3C2E: 63 03 >21         DFB  0,$62,$90,$92,$92,$93,$63,$03
>22          * LETTER "E"

3C30: 00 7E 40
3C33: 40 78 40
3C36: 40 7E >23         LE          DFB  0,$7E,$40,$40,$78,$40,$40,$7E
>24          * REVERSE "E"
>25          REVE

3C38: 00 7E BF >26         DFB  0,$FF-$7E,$FF-$40
3C3B: BF 78 >27         DFB  $FF-$40,$FF-$78
3C3D: BF 40 >28         DFB  $FF-$40,$FF-$40
3C3F: 81 >29         DFB  $FF-$7E
>30          * LETTER "X"

3C40: 00 41 22
3C43: 14 08 14
3C46: 22 41 >31         LX          DFB  0,$41,$22,$14,$08,$14,$22,$41
>32          * REVERSE "X"
>33          REVX

3C48: 00 41 DD >34         DFB  0,$FF-$41,$FF-$22
3C4B: EB F7 >35         DFB  $FF-$14,$FF-$08
3C4D: EB DD >36         DFB  $FF-$14,$FF-$22
3C4F: BE >37         DFB  $FF-$41
>38          * LETTER "T"

3C50: 00 08 08
3C53: 08 08 08
3C56: 08 7F >39         LT          DFB  0,$08,$08,$08,$08,$08,$08,$7F
>40          * REVERSE "T"
>41          REVT

3C58: 00 08 >42         DFB  0,$FF-$08
3C5A: F7 08 >43         DFB  $FF-$08,$FF-$08

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3C5C:	F7	44	-	>44	DFB	0, \$FF-\$08, \$FF-\$08
3C5E:	80	FF		>45	DFB	\$FF-\$7F, \$FF
				>46		* LETTER "A"
3C60:	00	44	44			
3C63:	44	7C	44			
3C66:	28	10		>47	LA	DFB 0, \$44, \$44, \$44, \$7C, \$44, \$28, \$10
				>48		* REVERSE "A"
				>49	REVA	
3C68:	00	BB	BB	>50	DFB	0, \$FF-\$44, \$FF-\$44
3C6B:	BB	7C		>51	DFB	\$FF-\$44, \$FF-\$7C
3C6D:	BB	28		>52	DFB	\$FF-\$44, \$FF-\$28
3C6F:	EF			>53	DFB	\$FF-\$10
				>54		
				>55		* LETTER "C"
3C70:	00	7F	40			
3C73:	40	40	40			
3C76:	40	7F		>56	LC	DFB 0, \$7F, \$40, \$40, \$40, \$40, \$40, \$7F
				>57		* LETTER "L"
3C78:	00	7F	40			
3C7B:	40	40	40			
3C7E:	40	40		>58	LL	DFB 0, \$7F, \$40, \$40, \$40, \$40, \$40, \$40
				>59		* LETTER "O"
3C80:	00	7F	41			
3C83:	41	41	41			
3C86:	41	7F		>60	LQ	DFB 0, \$7F, \$41, \$41, \$41, \$41, \$41, \$7F
				>61		* LETTERS FOR THE WORD "PRESENTS"
				>62		*****
				>63	LPR	
3C88:	00	84	85			
3C8B:	86	F7	94			
3C8E:	94	F7		>64	DFB	0, \$84, \$85, \$86, \$F7, \$94, \$94, \$F7
				>65	LE2	
3C90:	00	BD	20			
3C93:	20	B9	A1			
3C96:	A1	BD		>66	DFB	0, \$BD, \$20, \$20, \$B9, \$A1, \$A1, \$BD
				>67	LSE	
3C98:	00	EF	28			
3C9B:	28	EE	08			
3C9E:	08	EF		>68	DFB	0, \$EF, \$28, \$28, \$EE, \$08, \$08, \$EF
				>69	LN	
3CA0:	00	44	4C			
3CA3:	4C	54	54			
3CA6:	64	45		>70	DFB	0, \$44, \$4C, \$4C, \$54, \$54, \$64, \$45
				>71	LTS	
3CAB:	00	47	40			
3CAB:	40	47	44			
3CAE:	44	F7		>72	DFB	0, \$47, \$40, \$40, \$47, \$44, \$44, \$F7
				>73	LS	
3CB0:	00	CC	40			
3CB3:	40	C0	00			
3CB6:	00	C0		>74	DFB	0, \$C0, \$40, \$40, \$C0, \$00, \$00, \$C0
				>75		
3CB8:	00	00	00			
3CBB:	00	00	00			
3CBE:	00	00	00			
3CC1:	00			>76	NULL	DFB 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
				>77		* LETTER "G"
				>78		*****
				>79	LG	
3CC2:	00	7C	84			
3CC5:	8E	80	80			
3CC8:	84	7C	00	>80	DFB	\$00, \$7C, \$84, \$8E, \$80, \$80, \$84, \$7C, 0
				>81		* LETTER "V"
				>82		*****
				>83	LV	
3CCB:	00	00	00			
3CCF:	00	00	00			


```

3CCE: 12 12 21
3CD1: 21 21 >84 DFB 0,$00,$00,$10,$10,$20,$20,$20
>85 ;
>86 POS
3CD3: 85 02 >87 STA ATWAIT
3CD5: 95 20 >88 STA ATSAIN,X
3CD7: 29 0F >89 AND #$0F
3CD9: A8 >90 TAY
3CDA: A5 DD >91 LDA BAND
3CDC: A5 DD >92 LDA BAND
3CDE: A5 DD >93 LDA BAND
3CE0: A5 DD >94 LDA BAND ;CY 20.
>95 POS10
3CE2: 88 >96 DEY
3CE3: 10 FD >97 BPL POS10
3CE5: 95 10 >98 STA ATSALA,X
3CE7: 85 02 >99 STA ATWAIT
3CE9: 85 2A >100 STA ATMVIN
3CEP: 60 >101 RTS
>102 ;
>103 * POSITIONS FOR CHANNEL SELECT->
>104 LETPOS
3CEC: 2E 36 3E
3CEF: 46 4E >105 DFB $2E,$36,$3E,$46,$4E

```

```

09          OBJ  $8CF8
100         ORG  $3CF4
101  *****
102  * ORCHARD SCREEN PAINT FILE *
103  *****
104          PUT  MR.DO.ORCHARD
>1          */ MR.DO.ORCHARD LASTED:9/14/83.
>2          *****
>3          PAINT
>4          * JP INTO POS 3A & 3B TO GET STARTED.
>5          *****
3CF4: A9 00  >6          LDA  #SCRCOL
3CF6: 85 02  >7          STA  ATWAIT
3CF8: 85 09  >8          STA  ATSCOL      ;COLOR SCREEN.
>9          ;
3CFA: A2 07  >10         LDX  #7
3CFC: 86 DD  >11         STX  BAND      ;INIT BAND NUM FOR 8 BANDS.
3CFE: A5 8F  >12         LDA  FCOLOR
3D00: 85 08  >13         STA  ATFCOL
3D02: A9 10  >14         LDA  #$10      ;2X PWR BALL.
3D04: 8D 04 00 >15         STA  ATACTL      ;CY 20.
>16         ;PAINT ASYM FIELD-->
3D07: 85 98  >17         LDA  FR1L,X
3D09: 85 0E  >18         STA  ATRF1
3D0B: 85 A0  >19         LDA  FR2L,X
3D0D: 85 0F  >20         STA  ATRF2
3D0F: 85 80  >21         LDA  FR1R,X
3D11: 85 0E  >22         STA  ATRF1
3D13: 85 A8  >23         LDA  FR2R,X
3D15: 85 0F  >24         STA  ATRF2      ;CY 48.
>25         ;
>26         ;KILL 19 CY BEFORE JMP->
3D17: A0 03  >27         LDY  #3
>28         DLAY15
3D19: 88      >29         DEY
3D1A: D0 FD  >30         BNE  DLAY15
3D1C: A6 DD  >31         LDX  BAND
3D1E: 4C FC 3D >32         JMP  POSA-5
>33         ;CY 70.

```

```

>35
>36 * A NEW BAND IS ABOUT TO BEGIN-->
>37 *-----*
>38 ;Y=5
>39 *****
>40 * START OF: ASYM *
>41 * POS SA *
>42 * POS SB SEQUENCE. *
>43 *****
3D21: 85 08 >44 STA ATFCOL
3D23: 85 02 >45 STA ATWAIT
>46 ASYM
3D25: B1 E5 >47 LDA (ADAT),Y
3D27: 85 1B >48 STA ATADAT
3D29: F0 77 >49 BEQ ASYMA ;JP SA DONE.
3D2B: B1 F6 >50 LDA (BDAT),Y
3D2D: 85 1C >51 STA ATBDAT
3D2F: EA >52 NOP ;CY 20.
>53 ;ASYM FIELD-->
3D30: 85 98 >54 LDA FR1L,X
3D32: 85 0E >55 STA ATER1
3D34: 85 A0 >56 LDA FR2L,X
3D36: 85 0F >57 STA ATER2
3D38: 85 30 >58 LDA FR1R,X
3D3A: 85 0E >59 STA ATER1
3D3C: 85 A8 >60 LDA FR2R,X
3D3E: 85 0F >61 STA ATER2 ;CY 48.
>62 ;
3D40: B1 F6 >63 LDA (BDAT),Y
3D42: F0 28 >64 BEQ ASYMB ;JP SB DONE.
3D44: 85 DE >65 LDA LODATA,X ;SET UP DATA PTRS FOR NEXT BAND.
3D46: 85 E5 >66 STA ADAT
3D48: 85 EF >67 LDA LODATE,X
3D4A: 85 F6 >68 STA BDAT
3D4C: A0 11 >69 LDY #17 ;LN+1.
3D4E: B1 E5 >70 LDA (ADAT),Y ;CY 76.
>71 ;

```

```

>73 * NEITHER SPRITE IS DONE (CONT W/DATA).
>74 *****
>75 NFOA2
3D50: 95 1B >76 STA ATADAT
3D52: A9 00 >77 LDA #SCRCOL
3D54: 8D 08 00 >78 STAH ATFCOL ;FIELD OFF.
3D57: B1 F6 >79 LDA (BDAT),Y
3D59: 85 1C >80 STA ATBDAT ;CY 17.
3D5B: 88 >81 DEY
3D5C: 06 DC >82 ASL PTR ;SHIFT PAGE PTR.
3D5E: 85 02 >83 STA ATWAIT
>84 NFOB2
3D60: B1 E5 >85 LDA (ADAT),Y
3D62: 95 1B >86 STA ATADAT
3D64: B1 F6 >87 LDA (BDAT),Y
3D66: 95 1C >88 STA ATBDAT ;CY 16.
3D68: 88 >89 DEY
3D69: 4C 2E 3E >90 JMP ASYMV-4 ;PICK UP AT ASYM W/MOVE.

```

```

>92 * ONLY SB IS TO BE POSED--
>93 *****
>94 ASYMB

```

```

3D6C: B5 DE >95 LDA LQDATA,X
3D6E: B5 E5 >96 STA ADAT
3D70: B5 EF >97 LDA LODATB,X
3D72: B5 F6 >98 STA BDAT
3D74: A0 11 >99 LDY #17 ;LN+1.
3D76: EA >100 NOP
3D77: A9 00 >101 LDA #SCRCOL ;CY 76.
>102 NPOSA1
3D79: B5 08 >103 STA ATFCOL
3D7B: B1 E5 >104 LDA (ADAT),Y
3D7D: B5 1B >105 STA ATADAT
3D7F: 88 >106 DEY
3D80: A9 0E >107 LDA #WHITE ;DEFAULT COLOR.
3D82: B5 07 >108 STA ATBCOL
>109 ;PREPARE TO POS SB->
3D84: B5 F8 >110 LDA BPOF,X
3D86: B5 21 >111 STA ATSBIN
3D88: 29 0F >112 AND #$0F
3D8A: A6 >113 TAX
>114 ;NO PAGE SETUP NEEDED BUT->
3D8B: 06 DC >115 ASL PTR ;SHIFT PAGE FLAGS.
3D8D: B5 02 >116 STA ATWAIT
>117 POSB1
3D8F: B1 E5 >118 LDA (ADAT),Y
3D91: B5 1B >119 STA ATADAT
3D93: 88 >120 DEY
3D94: A5 D0 >121 LDA BAND ;NOP.
3D96: B1 E5 >122 LDA (ADAT),Y ;A DATA NEXT LINE.
>123 ;CY 18.
>124 LATB1
3D98: CA >125 DEX
3D99: 10 FD >126 BPL LATB1
3D9B: A6 D0 >127 LDX BAND
3D9D: B5 11 >128 STA ATSBLA ;LATCH SB.
3D9F: 4C 30 3E >129 JMP ASYMBV-2 ;PICK UP AT ASYM W/MOVE.

```

```

>131 * AT LEAST SA MUST BE POSED-->
>132 *****
>133 ASYMA
3DA2: B1 F6 >134 LDA (BDAT),Y
3DA4: 8D 1C 00 >135 STA ATBDAT ;CY 20
>136 ;ASYM FIELD-->
3DA7: B5 98 >137 LDA FR1L,X
3DA9: 85 0E >138 STA ATER1
3DAB: B5 A0 >139 LDA FR2L,X
3DAD: 85 0F >140 STA ATER2
3DAF: B5 B0 >141 LDA FR1R,X
3DB1: 85 0E >142 STA ATER1
3DB3: B5 A8 >143 LDA FR2R,X
3DB5: 85 0F >144 STA ATER2 ;CY 48.
>145 ;
3DB7: B1 F6 >146 LDA (BDAT),Y
3DB9: F0 39 >147 BEQ ASYMA ;JP BOTH SPRITES MUST BE POSITIONE
D.
3DBB: B5 DE >148 LDA LODATA,X ;SET UP DATA PTRS FOR NEXT BAND.
3DBD: 85 E5 >149 STA ADAT
3DBF: B5 EF >150 LDA LODATB,X
3DC1: 85 F6 >151 STA BDAT
3DC3: A0 11 >152 LDY #17 ;LN+1
3DC5: B1 F6 >153 LDA (BDAT),Y ;CY 76.
>154 ;
>155 * ONLY SA MUST BE POSED-->
>156 *****
>157 POSA1
3DC7: 85 1C >158 STA ATBDA1
3DC9: A9 00 >159 LDA #SCF00L
3DCB: 8D 08 00 >160 STA ATFC0L ;FIELD OFF.
3DCE: B5 E7 >161 LDA APOF,X
3DD0: 8D 2C 00 >162 STA ATBAIN
3DD3: 29 0F >163 AND #$0F
3DD5: AA >164 TAX ;CY 21.
>165 LATCH1
3DD6: CA >166 DEX
3DD7: 10 FD >167 BPL LATCH1
3DD9: 85 10 >168 STA ATSALA ;LATCH SA.
3ddb: A6 DD >169 LDY BAND
3DDD: 85 02 >170 STA ATWAIT
>171 ;
>172 * DON'T POS SPRITE B (CONT W/DATA).
>173 *****
>174 NPOSB
3DDE: 88 >175 DEY
3DE0: B1 F6 >176 LDA (BDAT),Y
3DE2: 85 1C >177 STA ATBIAT
3DE4: A9 B6 >178 LDA #BLUE ;DEFAULT COLOR.
3DE6: 85 06 >179 STA ATACOL
3DE8: 88 >180 DEY
>181 ;SELECT SA PAGE-->
3DE9: A9 3A >182 LDA #>IMG1
3DEB: 06 DC >183 ASL PTR
3DED: 69 00 >184 ADC #0
3DEF: 85 E6 >185 STA HIDATA
>186 ;
3DF1: 4C 2E 3E >187 JMP ASYMV-4 ;PICK UP AT ASYMV.

```


>187 * BOTH SA & SB MUST BE POSED--
 >190 *****
 >191 ASYNAB

3DF4: B5 DE	>192				
3DF6: B5 E5	>193	LDA	LODATA,X		:CY 56.
3DF8: B5 EF	>194	STA	ADAT		:SET UP DATA PTRS FOR NEXT LAND.
3DFA: B5 F6	>195	LDA	LODATE,X		
3DFC: A7 00	>196	STA	BDAT		
3DFE: 8D 08 00	>197	LDA	#SCRCOL		
	>198	STAH	ATFCOL		:CY 76.
	>199				
3E01: B5 E7	>200	LDA	APDF,X		
3E03: 8D 20 00	>201	STAH	ATSAIN		
3E06: 29 0F	>202	AND	#\$0F		
3E0E: A8	>203	TAY			
	>204				:FIG SA PAGE-0
3E09: A9 3A	>205	LDA	#>IMG1		
3E0B: 06 DC	>206	ASL	PTR		
3E0D: 69 00	>207	ADC	#0		:CY 21.
	>208				
3E0F: 88	>209	DEY			
3E10: 10 FD	>210	BPL	LAT		
3E12: 85 10	>211	STA	ATSALA		:LATCH SA.
3E14: 85 E6	>212	STA	HIDATA		
3E16: A9 0E	>213	LDA	#WHITE		:DEFAULT COLOR.
3E18: 95 02	>214	STA	ATWAIT		
	>215				
3E1A: 95 07	>216	STA	ATBCOL		:MR DO COLOR.
3E1C: A9 B6	>217	LDA	#BLUE		:DEFAULT COLOR.
3E1E: 85 06	>218	STA	ATACOL		:DIG COLOR.
3E20: B5 F8	>219	LDA	BPOF,X		
3E22: 85 21	>220	STA	ATSBIN		
3E24: 29 0F	>221	AND	#\$0F		
3E26: A8	>222	TAY			:CY 19.
	>223				
3E27: 88	>224	DEY			
3E28: 10 FD	>225	BPL	LATB		
3E2A: A0 0F	>226	LDY	#15		:LN-1
3E2C: 85 11	>227	STA	ATSBLA		:LATCH SE.
3E2E: B1 E5	>228	LDA	(ADAT),Y		
3E30: 85 02	>229	STA	ATWAIT		
	>230				:

```

>232 * ASYM FIELD W/FINE POSITIONING
>233 *****
>234 ASYMV

```

```

3E32: 85 2A >235 STA ATMVIN ; FINE POSITION.
3E34: 85 1B >236 STA ATADAT
3E36: A5 8F >237 LDA FCOLOR
3E38: 85 08 >238 STA ATFCOL ; FIELD ON.
3E3A: B1 F6 >239 LDA (BDAT),Y
3E3C: 85 1C >240 STA ATBDAT ; CY 20.
>241 ; ASYM FIELD->
3E3E: 85 98 >242 LDA FR1L,X
3E40: 85 0E >243 STA ATER1
3E42: 85 A0 >244 LDA FR2L,X
3E44: 85 0F >245 STA ATER2
3E46: 85 B0 >246 LDA FR1R,X
3E48: 85 0E >247 STA ATER1
3E4A: 85 A8 >248 LDA FR2R,X
3E4C: 85 0F >249 STA ATER2 ; CY 48.
>250 ;
>251 ; DO SA COLOR TEST HERE-->
3E4E: A9 00 >252 LDA #CHERRY
3E50: C3 F6 >253 CMP BDAT
3E52: F0 04 >254 BEQ YCHRY ; JP IF CHERRY.
3E54: A9 00 >255 LDA #0
3E56: F0 06 >256 BEQ NCHRY
>257 YCHRY
3E58: A9 44 >258 LDA #$44 ; PAL RED.
3E5A: 85 07 >259 STA ATBCOL ; COLOR CHERRY.
3E5C: 85 90 >260 LDA CHERRYC,X
>261 NCHRY
3E5E: 85 05 >262 STA ATBCTL
3E60: 88 >263 DEY
3E61: A9 00 >264 LDA #SCRCOL ; FIELD OFF.
3E63: 85 02 >265 STA ATWAIT ; CY 75. (WORST CASE).

```

```

>267 * SPRITE DATA LINE 1---->
>268 * (ALT. COLOR TESTS, MIS TESTS).
>269 *****
>270 BDAT1
3E65: 85 08 >271 STA ATFCOL ;FLD OFF.
3E67: B1 E5 >272 LDA (ADAT),Y
3E69: 85 1B >273 STA ATADAT
3E6B: B1 F6 >274 LDA (BDAT),Y
3E6D: 85 1C >275 STA ATBDAT ;CY 19.
>276 ;
3E6F: A9 3A >277 LDA #KAPEND ;E-O-APPLE IMAGES.
3E71: C5 E5 >278 CMP ADAT
3E73: 90 04 >279 BCC MTEST ;JP NOT APPLE.
3E75: A9 28 >280 LDA #ORANGE
3E77: 85 06 >281 STA ATACOL ;COLOR APPLE.
>282 ;CY 31
>283 MTEST
3E79: A5 BA >284 LDA MSBAND
3E7B: C5 D0 >285 CMP BAND
3E7D: D0 08 >286 BNE NOMIS ;JP NOT MISSILE BAND.
3E7F: C4 B9 >287 CPY MISLN
3E81: D0 04 >288 BNE NOMIS ;JP NOT MISSILE LINE.
3E83: A9 02 >289 LDA #2
3E85: 85 1D >290 STA ATENMA ;TURN MISSILE ON.
>291 NOMIS
3E87: 38 >292 DEY
3E88: 85 02 >293 STA ATWAIT

```

195 * SPRITE DATA, END-OF-BAND & END-OF-PLAYFIELD TESTING.

296 *****

297 BDATA2

3E8A:	B1 E5	>298	LDA	(ADAT),Y	
3E9C:	B5 1B	>299	STA	ATADAT	
3E8E:	B1 F6	>300	LDA	(BDAT),Y	
3E90:	B5 1C	>301	STA	ATBDAT	
3E92:	A5 BA	>302	LDA	MSBAND	
3E94:	C5 DD	>303	CMP	BAND	;CY 22.
3E96:	F0 0A	>304	BEQ	MIS1	;J IF MIS BAND.
3E98:	CA	>305	DEX		;DEC BAND INCASE NUBAND.
3E99:	EA	>306	NOF		
3E9A:	EA	>307	NOF		
3E9B:	EA	>308	NOF		
3E9C:	EA	>309	NOF		
3E9D:	EA	>310	NOF		
3E9E:	EA	>311	NOF		
3E9F:	4C B4 3E	>312	JMP	CYCL41	;CY 41
		>313	MIS1		
3EA2:	C4 B9	>314	CPY	MISLN	;CY 28.
3EA4:	F0 07	>315	BEQ	MIS2	;J IF MIS LN.
3EA6:	CA	>316	DEX		;DEC BAND INCASE NUBAND.
3EA7:	EA	>317	NOF		
3EA8:	EA	>318	NOF		
3EA9:	EA	>319	NOF		
3EAA:	4C B4 3E	>320	JMP	CYCL41	;CY 41
		>321	MIS2		
3EAD:	A9 02	>322	LDA	#2	;MIS ON.
3EAF:	B5 1D	>323	STA	ATENMA	;CY 36.
3EB1:	A6 DD	>324	LDX	BAND	;DEX INCASE NU BAND TIME.
3EB3:	CA	>325	DEX		;CY 41
		>326	CYCL41		
		>327			
3EB4:	B8	>328	DEY		
3EB5:	F0 34	>329	BEQ	NUBAND	;MUST JP A CY 46.
3EB7:	A6 DD	>330	LDX	BAND	;GET CORRECT BAND NUM BACK.
3EB9:	A5 8F	>331	LDA	FCOLOR	
3EBB:	B5 02	>332	STA	ATWAIT	

>334 1 ASYM FIELD W/SPRITE DATA.
 >335 *****
 >336 ASYMD

3EBD: 85 06	>337	STA	ATFCOL	
3EBF: B1 05	>338	LDA	(ADAT),Y	
3EC1: 85 1B	>339	STA	ATADAT	
3EC3: B1 F6	>340	LDA	(BDAT),Y	
3EC5: 8D 1C 00	>341	STAH	ATBDAT	;CY 20.
	>342			;ASYM FIELD=
3EC8: 85 96	>343	LDA	FR1L,X	
3ECA: 85 0E	>344	STA	ATFR1	
3ECC: 85 AC	>345	LDA	FR2L,X	
3ECE: 85 0F	>346	STA	ATFR2	
3ED0: 85 B0	>347	LDA	FR1R,X	
3ED2: 85 0E	>348	STA	ATFR1	
3ED4: 85 A8	>349	LDA	FR2R,X	
3ED6: 85 0F	>350	STA	ATFR2	;CY 48.
	>351			;
3ED8: 83	>352	DEY		
	>353			
3ED9: EA	>354	NOF		
3EDA: EA	>355	NOF		
3EDB: EA	>356	NOF		
3EDC: EA	>357	NOF		
3EDD: EA	>358	NOF		
3EDE: EA	>359	NOF		
	>360			;
3EDF: A9 00	>361	LDA	#0	
3EE1: 85 1D	>362	STA	ATENMA	;TURN MISSILE OFF.
3EE3: AE DD 00	>363	LDXH	BAND	
3EE6: A9 00	>364	LDA	#SCRCOL	
3EE8: 4C 65 3E	>365	JMP	SDAT1	;CY 76.
	>366			;

```

368 NUBANI
369 STA ATREMV
370 DEC BAND
371 BMI FIN ;OP DONE ALL BANDS.
372 ;
373 * PREPARE TO START A NEW BAND *
374 *****
375 LDA #0
376 STA ATBCTL ;1X,1C=DEFAULT CONTROL.
377 STA ATENMA ;MIS OFF.
378 LDA FCOLOR
379 JMP ASYM-4 ;CY 70.
380 * PLAYFIELD IS DONE-->
381 *****
382 FIN
383 STA ATWAIT
384 LDA #0
385 STA ATADAT
386 STA ATBDAT
387 STA ATENMA ;PWR BALL OFF.
388 * PAINT A BAR AT BOTTOM OF PLAYFIELD->
389 *****
390 LDA #$FF
391 ;FLD ON->
392 LDY FCOLOR
393 STY ATFCOL
394 STA ATER1
395 STA ATER2
396 ;
397 STA ATWAIT
398 LDA #SCRCOL
399 STA ATFCOL
400 STA ATWAIT
401 STA ATWAIT ;PAL(3)
402 ;
403 LDA FCOLOR
404 STA ATFCOL
405 STA ATWAIT
406 LDA #SCRCOL
407 STA ATFCOL ;FLD OFF.
408 LDX #0
409 STX ATER0
410 STX ATER1
411 STX ATER2
412 ;

```

3EEB: 85 2B
3EED: C6 DD
3EEF: 30 0B

3EF1: A9 00
3EF3: 85 05
3EF5: 85 1D
3EF7: A5 8F
3EF9: 4C 21 3D

3EFC: 85 02
3EFE: A9 00
3F00: 85 1B
3F02: 85 1C
3F04: 85 1D

3F06: A9 FF

3F0B: A4 8F
3F0A: 84 0B
3F0C: 85 0E
3F0E: 85 CF

3F10: 85 02
3F12: A9 00
3F14: 85 0B
3F16: 85 02
3F18: 85 02

3F1A: A5 8F
3F1C: 85 0B
3F1E: 85 02
3F20: A9 00
3F22: 85 0B
3F24: A2 00
3F26: 86 0D
3F28: 86 0E
3F2A: 86 0F


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3F2C: A9 19 >414 LDA #MRDOLL
3F2E: 85 F0 >415 STA TEMP2
3F30: 85 F2 >416 STA TEMP4 ;SETUP INV PTES HL
3F32: A9 20 >417 LDA #MRDOLL ;FAL.
3F34: 85 EF >418 STA TEMP1
3F36: 85 F1 >419 STA TEMP3 ;IBID LO.
3F38: A2 34 >420 LDX #<NULLP ;NULL IMG.
>421 ;
>422 * LATCH SPRITES FOR INVENTORY-->
>423 *****
3F3A: A0 04 >424 LDY #4
3F3C: 85 02 >425 STA ATWAIT
>426 POSI
3F3E: 88 >427 DEY
3F3F: 10 FD >428 BPL POSI
3F41: 85 10 >429 STA ATSALA
3F43: EA >430 NOP
3F44: EA >431 NOP
3F45: EA >432 NOP
3F46: EA >433 NOP
3F47: EA >434 NOP
3F48: A5 DD >435 LDA BAND
3F4A: 85 11 >436 STA ATSBLA
>437 ;
3F4C: 85 02 >438 STA ATWAIT
3F4E: A9 34 >439 LDA #GREEN
3F50: 85 09 >440 STA ATSCOL
3F52: A9 0E >441 LDA #WHITE
3F54: 85 06 >442 STA ATACOL
3F56: 85 07 >443 STA ATBCOL
>444 ;
>445 * PAINT MR DO INVENTORY-->
>446 *****
3F58: A4 DB >447 LDY DOINV ;# MR DO'S LEFT.
3F5A: B9 8F 3F >448 LDA INVTBL,Y
3F5D: 30 04 >449 BMI INV2 ;JP INV<4 BUT >0.
3F5F: D0 04 >450 BNE INV3 ;JP SOME DO'S LEFT.
3F61: 86 EF >451 STX TEMP1 ;SA=NULL
>452 INV2
3F63: 86 F1 >453 STX TEMP3 ;SB= NULL.
>454 INV3
3F65: 85 04 >455 STA ATACTL
3F67: 4A >456 LSR
3F68: 4A >457 LSR
3F69: 4A >458 LSR
3F6A: 4A >459 LSR
3F6B: 85 05 >460 STA ATBCTL
>461 ;
>462 * PAINT MR.DO INVENTORY-->
>463 *****
3F6D: A0 03 >464 LDY #3 ;PAL (4 LINES)
>465 PAL4
3F6F: 85 02 >466 STA ATWAIT
3F71: 89 >467 DEY
3F72: 10 FB >468 BPL PAL4
>469 ;
>470 INVENT
3F74: A0 0F >471 LDY #15 ;PAL (8 LINES)
>472 DOLOOP
3F76: 85 02 >473 STA ATWAIT
3F78: B1 EF >474 LDA (TEMP1),Y
3F7A: 85 1B >475 STA ATADAT
3F7C: B1 F1 >476 LDA (TEMP3),Y
3F7E: 85 1C >477 STA ATBDAT
3F80: 88 >478 DEY

```

3F81:	10	F3	>479	BPL	DOLOOP	PAINT MR.00 INVENTORY.
3F83:	03		>480	INY		
3F84:	84	1B	>481	STY	ATADAT	
3F86:	84	1C	>482	STY	ATBDAT	
3F88:	84	1E	>483	STY	ATADAT	
3F8A:	84	1C	>484	STY	ATBDAT	
3F90:	4C	07	30 >485	JMP	BVIEW	;60 DO BOTVI.
			>486			
3F8F:	00	80	81			
3F92:	83	03	13			
3F95:	33		>487	DFB	0,\$80,\$81,\$83,\$03,\$13,\$33	

INVTBL

```

106 *****
107 * DISPLAY RTN FOR 6 SPRITES *
108 *****
109 PUT MR.DO.SCORE RTN
>1 */SCORE RTN LAST EDIT: 6/23/83
>2 *.....SCORE.....
>3 *FUNCTION SCORE DISPLAYS A 6 DIGIT SCORE
>4 *
>5 SCORE
3F96: 85 02 >6 STA ATWAIT
3F98: A2 00 >7 LDX #BLACK
3F9A: 86 09 >8 STX ATSCOL
3F9C: A9 03 >9 LDA #3
3F9E: 85 02 >10 STA ATWAIT
3FA0: 85 04 >11 STA ATACTL ;1X 3C 85
3FA2: 85 05 >12 STA ATBCTL
3FA4: 85 25 >13 STA ATASEL ;GET READY TO LOAD OUTER BUFF
3FA6: 85 26 >14 STA ATBSEL
>15 *ADJ INCR SO SPRITES ARE SIDE BY SIDE
3FA8: A9 10 >16 LDA #$10
3FAA: 85 20 >17 STA ATSAIN
3FAC: 0A >18 ASL
3FAD: 85 21 >19 STA ATSBIN
3FAF: EA >20 NOP
3FB0: EA >21 NOP
3FB1: EA >22 NOP
3FB2: EA >23 NOP
3FB3: EA >24 NOP
3FB4: EA >25 NOP
3FB5: EA >26 NOP
3FB6: 85 10 >27 STA ATSALA ;LATCH SPRITE A
3FB8: 85 11 >28 STA ATSELA ;B 9 PIXELS LATER
>29 * ENTER HERE FOR 6 SPRITES W/O POS.
>30 SCORE1
3FBA: 85 02 >31 STA ATWAIT
3FBC: 85 2A >32 STA ATMVIN ;MOVE FINE INCR
>33 ;
3FBE: A9 07 >34 LDA #7
3FC0: 85 EF >35 STA TEMP1 ;LINE COUNT
>36 *ACTUAL PAINTING OF DIGITS
>37 SC4
3FC2: A4 EF >38 LDY TEMP1
3FC4: B1 F2 >39 LDA (PD100K),Y ;GET 100K DATA
3FC6: 85 1B >40 STA ATADAT ;WRITE TO OUTER BUFF (UNSEEN)
3FC8: 85 02 >41 STA ATWAIT
3FCA: B1 F4 >42 LDA (PD10K),Y ;GET 10K DATA
3FCC: 85 1C >43 STA ATBDAT ;TO OUTER BUFF (100K SEEN NOW)
3FCE: B1 F6 >44 LDA (PD1K),Y ;GET 1K DATA
3FD0: 85 1B >45 STA ATADAT ;TO BUFFER (10K SEEN NOW)
3FD2: B1 F8 >46 LDA (PD100),Y ;GET 100'S DATA
3FD4: 85 F0 >47 STA TEMP2 ;TUCK AWAY
3FD6: B1 FA >48 LDA (PD10),Y ;GET 10'S DATA
3FD8: AA >49 TAX ;TUCK AWAY IN X
3FD9: B1 FC >50 LDA (PD1),Y ;1'S DATA
3FDB: A8 >51 TAY ;SAVE IT FOR TIME CRITICAL
3FDC: A5 F0 >52 LDA TEMP2 ;RETRIEVE 100'S DATA
3FDE: 85 1C >53 STA ATBDAT ;100 TO BUFF, 1K SEEN
3FE0: 86 1B >54 STX ATADAT ;10 TO BUFF, 100 SEEN NOW
3FE2: 84 1C >55 STY ATBDAT ;1 TO BUFF, 10 SEEN NOW
3FE4: 94 1B >56 STY ATADAT ;DUMMY WRITE TO BUFF, 1 SEEN NOW
3FE6: C6 EF >57 DEC TEMP1 ;LINE COUNT
3FE8: 10 DB >58 BPL SC4 ;LOOPTILL DONE
>59 *
>60 *RESET CONTROL AND DATA REGS
3FEA: A9 00 >61 LDA #0

```

3FEE: 85 1B >62
3FEE: 85 1C >63
3FF0: 85 2B >64
 >65 *
 >66 *
3FF2: 60 >67

STA ATADAT -
STA ATBOAT
STA ATRENV
STA ATASEL
STA ATBSEL
RTS

:SEL IMMED MODE.


```

111          OBJ  $9000
112          ORG  $3FFC
3FFC: 0E 30  113          DA  INITSW
114          END

```

--End assembly--

2 bytes

Errors: 0

Symbol table - alphabetical order:

ADAT	=\$E5	ADUR	=\$B8	AIDX	=\$86	ALFSET	=\$33E0
ALPHA	=\$8B	AMUSFW	=\$3697	AMUSVT	=\$36F4	ANIM8	=\$8E
ANIM9	=\$3054	APBAND	=\$D0	APEND	=\$3A3A	APFALL	=\$8D
APIMG	=\$323C	APLFR5	=\$312F	APLFRM	=\$312A	APQF	=\$E7
? APPLE0	=\$3A00	APFLE1	=\$3A00	APPLE2	=\$3A0E	APPLE3	=\$3A1C
APPLE4	=\$3A2A	APPLE5	=\$3A38	APQF	=\$D4	APR50	=\$30F1
APRAM	=\$30C5	? AS1FW	=\$3697	? AS1VT	=\$36F4	? AS2FW	=\$36C8
? AS2VT	=\$3725	? AS3FW	=\$36E8	? AS3VT	=\$3745	ASYM	=\$3D25
ASYMA	=\$3DA2	ASYMAB	=\$3DF4	ASYMB	=\$3D6C	? ASYMD	=\$3EBD
ASYMV	=\$3E32	ATACOL	=\$06	ATACTL	=\$04	ATADAT	=\$1B
ATADIV	=\$17	ATASEL	=\$25	ATAVOL	=\$19	ATAWAV	=\$15
ATBCOL	=\$07	ATBCTL	=\$05	ATBDAT	=\$1C	ATBDIV	=\$18
ATBLNK	=\$01	ATBSEL	=\$26	ATBVOL	=\$1A	ATBWAV	=\$16
ATENFM	=\$1F	ATENMA	=\$1D	? ATENMB	=\$1E	ATFCOL	=\$08
? ATFCTL	=\$0A	ATFRO	=\$0D	ATFR1	=\$0E	ATFR2	=\$0F
? ATFSEL	=\$27	? ATHORC	=\$03	? ATJBA	=\$3C	? ATJBB	=\$3D
ATMVIN	=\$2A	ATREMV	=\$2B	ATSAIN	=\$20	ATSALA	=\$10
ATSBIN	=\$21	ATSBLA	=\$11	ATSCOL	=\$09	? ATSYNC	=\$00
ATWAIT	=\$02	BAND	=\$DD	BAND1	=\$34B3	BDAT	=\$F6
BDUR	=\$89	? BEEP	=\$3817	? BELLS	=\$3823	BIDX	=\$87
BLACK	=\$00	BLANK	=\$38E0	BLUE	=\$B6	BMUSFW	=\$3751
BMUSVT	=\$37AE	? BOOP	=\$381D	BOTOFF	=\$3677	? BOTTIM	=\$AC
BOTVI	=\$202E	BPOF	=\$F8	? BROWN	=\$12	? BS1FW	=\$3751
? BS1VT	=\$37AE	? BS2FW	=\$3782	? BS2VT	=\$37DF	? BS3FW	=\$37A2
? BS3VT	=\$37FF	BVISW	=\$3007	CDAT	=\$3475	? CHER1	=\$382B
? CHER2	=\$3838	? CHER3	=\$3845	? CHER4	=\$3852	? CHER5	=\$385F
? CHER6	=\$386C	CHERRY	=\$3900	CHERRY5	=\$346D	CHERRYC	=\$90
? CHERRYT	=\$8C	CHRFOS	=\$3687	COLECO	=\$39AA	COMP1	=\$3191
COMP15	=\$319A	COMP2	=\$31A2	COMP3	=\$31B2	COMPET	=\$318C
CPETE	=\$31AF	CPETE2	=\$31B7	CYCL41	=\$3EB4	DATA1	=\$3890
DATA2	=\$3C00	? DEADSDN	=\$380F	DIG12	=\$3109	DIG13	=\$3112
DIG15	=\$3115	DIG17	=\$3122	? DIG18	=\$3127	DIG33	=\$3144
DIG40	=\$3153	DIG45	=\$3162	DIG50	=\$3171	DIG60	=\$317D
DIG99	=\$3189	DIGBAND	=\$BE	DIGDAT	=\$C4	? DIGDIR	=\$C6
DIGIMG	=\$324C	? DIGINV	=\$8A	? DIGIQ	=\$CC	DIGITS	=\$3890
DIGLL	=\$3A70	DIGLR	=\$3A4F	DIGPOF	=\$C1	? DIGSPD	=\$C8
? DIGTIM	=\$CA	DLAY15	=\$3D19	DO1	=\$3378	DOBAND	=\$BD
DODAT	=\$C3	DODEAD	=\$20	DOINV	=\$DB	DOLLOOP	=\$3F76
DOPQF	=\$C0	DOTIME	=\$3488	? DOWND	=\$01	? DOWNI	=\$04
DUGLL	=\$3A92	DUGLR	=\$3AB4	DUGRL	=\$3B20	DUGRR	=\$3B00
EIGHT	=\$38D0	END	=\$3FFE	FCOLOR	=\$8F	FIN	=\$3EFC
FIRST	=\$31CD	FIVE	=\$38B8	FOUR	=\$38B0	FR1L	=\$98
FR1R	=\$B0	FR2L	=\$A0	FR2R	=\$AB	FRAMEH	=\$85
FRAMEL	=\$84	FTEST	=\$347F	GAME	=\$80	GAMETB	=\$39C3
GAMQVR	=\$40	GAMSPD	=\$327B	? GOLD	=\$16	GREEN	=\$34
HIDATA	=\$E6	HIDATB	=\$F7	HOLD10	=\$335B	HOLD7	=\$3329
HOLD9	=\$3340	HOLDUP	=\$3310	ICHERRY	=\$3453	IMG1	=\$3A00
? IMG2	=\$3B00	IMG5	=\$32B6	IMG6	=\$32E1	INITSW	=\$300E
INV2	=\$3F63	INV3	=\$3F65	? INVENT	=\$3F74	INVTBL	=\$3F8F
? IODIR	=\$0281	? IOBDIR	=\$0283	ISA	=\$3086	? JGYADN	=\$20

? IOADIR	=\$0281	? IOBDIR	=\$0283	ISA	=\$3086	? JOYADN	=\$20
? JOYALT	=\$40	? JOYART	=\$80	? JOYALP	=\$10	? JOYBDN	=\$02
? JOYBLT	=\$04	? JOYBRT	=\$08	? JOYBUP	=\$01	? JOYDAT	=\$0280
LA	=\$3C60	LASTJY	=\$D8	LAT	=\$3E0F	LATE	=\$3E27
LATB1	=\$3D98	LATCH1	=\$3DD6	? LBLUE	=\$96	LC	=\$3C70
LD	=\$3C20	LE	=\$3C30	LE2	=\$3C90	? LEFTD	=\$03
? LEFTI	=\$0C	? LETIMG	=\$3252	LETFOS	=\$3CEC	LETRA	=\$3BCD
LETRE	=\$3B49	LETRR	=\$3BAC	LETRT	=\$3B8B	LETRX	=\$3B6A
LETTBL	=\$39CF	? LETTRS	=\$3C00	LG	=\$3CC2	LL	=\$3C7E
LM	=\$3C00	LN	=\$3CA0	LO	=\$3C80	LODATA	=\$DE
LODATB	=\$EF	LOH	=\$3C28	LPR	=\$3C88	LR	=\$3C08
LS	=\$3CB0	LSE	=\$3C98	LSTLFT	=\$3052	LT	=\$3C50
LTS	=\$3CAB	LV	=\$3CCB	LX	=\$3C40	MDON	=\$34E7
MDPOF	=\$34EB	MDPTL	=\$3248	MDPTR	=\$324A	MIDTIM	=\$BC
MIS1	=\$3EA2	MIS2	=\$3EAD	? MISDIR	=\$BC	MISLN	=\$B9
MISPOF	=\$BB	MODE	=\$DA	? MRDOIMG	=\$3248	MRDOLL	=\$3922
MRDOLR	=\$3988	MRDORL	=\$3944	MRDORR	=\$3966	MRDOT1	=\$39B6
MRDOTB	=\$39B7	MSBAND	=\$BA	MTEST	=\$3E79	MUS15	=\$3565
MUS2	=\$3532	MUS25	=\$356E	MUS5	=\$3546	MUS50	=\$3570
MUS55	=\$3588	MUS65	=\$35A7	MUS75	=\$35B0	MUSIC	=\$352B
MUX	=\$CE	NCHRY	=\$3E5E	NDIG	=\$3038	NINE	=\$38D8
NQDQ	=\$34BA	NOMIS	=\$3E87	NOPWR	=\$3451	NORK	=\$3068
NORM	=\$33EF	NORMAP	=\$30C1	NOTSEL	=\$3353	? NPOSA1	=\$3D79
? NPOSA2	=\$3D50	? NPOSB	=\$3DDF	? NPOSB2	=\$3D60	NUBAND	=\$3EEB
NULL	=\$3CB8	NULL1	=\$3AE4	NULLB	=\$3934	NULLTB	=\$39BD
OK2	=\$301F	ONE	=\$3898	ORANGE	=\$28	ORCHARD	=\$338B
ORK	=\$306B	ORKSCR	=\$329D	OVERTB	=\$39C9	PAINT	=\$3CF4
PAL4	=\$3F6F	PAL6	=\$33F9	PD1	=\$FC	PD1Q	=\$FA
PD100	=\$F8	PD100K	=\$F2	PD10K	=\$F4	PD1K	=\$F6
PLAY	=\$10	POS	=\$3CD3	POS10	=\$3CE2	POSA	=\$3E01
? POSA1	=\$3DC7	? POSB	=\$3E1A	? POSB1	=\$3D8F	POSI	=\$3F3E
POSTBL	=\$35E6	PRESNT	=\$39B0	PTR	=\$DC	PTRBIT	=\$31DE
PTRDON	=\$31E7	? PURPLE	=\$68	PW3	=\$34F2	PWAIT	=\$34F2
? PWRTIM	=\$D8	? RANDOM	=\$D9	? RED	=\$22	RESUM	=\$B0
REVA	=\$3C68	REVE	=\$3C38	REVR	=\$3C10	REVT	=\$3C58
REVTBL	=\$39D5	REVM	=\$3C48	? RIGHTD	=\$02	? RIGHTI	=\$08
? ROUND	=\$81	SBIMG	=\$3900	SC4	=\$3FC2	SCORE	=\$3F96
SCORE1	=\$3FBA	SCORHI	=\$83	SCORLO	=\$82	SCORTB	=\$38E8
SCRCOL	=\$00	SDAT1	=\$3E65	? SDAT2	=\$3E8A	SELECT	=\$30
? SETRAM	=\$307C	SEVEN	=\$38C8	SIX	=\$38C0	SMLR	=\$3C18
SND5	=\$35CA	SND80	=\$35E3	SND99	=\$35E5	SNDTBL	=\$380F
SOUND	=\$35B5	SPR6	=\$39E7	SPRIT6	=\$39DE	? SWIADF	=\$40
? SWIBDF	=\$80	? SWICOL	=\$08	? SWIRES	=\$01	? SWISEL	=\$02
? SWITCH	=\$0282	TEMP1	=\$EF	? TEMP10	=\$F8	TEMP11	=\$EC
TEMP12	=\$ED	TEMP13	=\$EE	TEMP14	=\$EA	TEMP15	=\$EB
TEMP2	=\$F0	TEMP3	=\$F1	TEMP4	=\$F2	? TEMP5	=\$F3
? TEMP6	=\$F4	? TEMP7	=\$F5	? TEMP8	=\$F6	? TEMP9	=\$F7
TEST2	=\$327F	THREE	=\$38A8	TIME64	=\$0296	TIMER	=\$0284
TITL11	=\$32C8	TITL12	=\$32CE	TITLE	=\$325C	TITLE0	=\$32A0
TITLE1	=\$32BF	TITLE2	=\$32EA	TITLE3	=\$32F3	TITLE9	=\$3303
TOP2	=\$3012	TOPEND	=\$325C	TOPOFF	=\$3667	? TOPTIM	=\$B3
TRACK	=\$50	TRY1	=\$3223	TRY9	=\$3236	TRYON	=\$321E
TURN5	=\$3203	TURNON	=\$31C0	TWO	=\$38A0	TWODIG	=\$302B
? UPD	=\$00	? UPI	=\$00	UPFTR	=\$3036	VOLTB	=\$380B
WAIT5	=\$3383	WHITE	=\$0E	WORDS	=\$39AA	XTRADD	=\$70
YCHRY	=\$3E58	YELLOW	=\$28	ZERO	=\$3890		

Symbol table - numerical order:

? ATSYNC	=\$00	BLACK	=\$00	SCRCOL	=\$00	? UPI	=\$00
? UPD	=\$00	ATBLNK	=\$01	? JOYBUP	=\$01	? SWIRES	=\$01
? DOWND	=\$01	ATWAIT	=\$02	? JOYBDN	=\$02	? SWISEL	=\$02
? RIGHTD	=\$02	? ATHORC	=\$03	? LEFTD	=\$03	ATACTL	=\$04
? JOYBLT	=\$04	? DOWNI	=\$04	ATBCTL	=\$05	ATACOL	=\$06
ATECOL	=\$07	ATFCOL	=\$08	? JOYBRT	=\$08	? SWICOL	=\$08

NAME	VALUE	NAME	VALUE	NAME	VALUE	NAME	VALUE
ATFRG	=\$0D	ATFR1	=\$0E	WHITE	=\$0E	ATFR2	=\$0F
ATSALA	=\$10	JOYALP	=\$10	PLAY	=\$10	AT3BLA	=\$11
BROWN	=\$12	ATAWAY	=\$15	ATEWAY	=\$16	GOLD	=\$16
ATADIV	=\$17	ATBDIV	=\$18	ATAVOL	=\$19	ATBVOL	=\$1A
ATADAT	=\$1B	ATBDAT	=\$1C	ATENMA	=\$1D	ATENMB	=\$1E
ATENFM	=\$1F	ATSAIN	=\$20	JOYADN	=\$20	DODEAD	=\$20
ATSBIN	=\$21	RED	=\$22	ATASEL	=\$25	ATBSEL	=\$26
ATFSEL	=\$27	YELLOW	=\$28	ORANGE	=\$28	ATMVIN	=\$2A
ATREMV	=\$2B	SELECT	=\$30	GREEN	=\$34	ATJBA	=\$3C
ATJBB	=\$3D	JOYALT	=\$40	SWIADF	=\$40	GAMQVR	=\$40
TRACK	=\$50	PURPLE	=\$68	XTRADO	=\$70	JOYART	=\$80
SWIBDF	=\$80	GAME	=\$80	RESUM	=\$80	ROUND	=\$81
SCORLO	=\$82	SCORHI	=\$83	FRAMEL	=\$84	FRAMEH	=\$85
AIDX	=\$86	BIDX	=\$87	ADUR	=\$88	BDUR	=\$89
DIGINV	=\$8A	ALPHA	=\$8B	CHERRYT	=\$8C	APFALL	=\$ED
ANIMB	=\$8E	FCOLOR	=\$8F	CHERRYD	=\$90	LBLUE	=\$96
FR1L	=\$98	FR2L	=\$A0	FR2R	=\$A8	BOTTIM	=\$AC
FR1R	=\$B0	TOPTIM	=\$B3	BLUE	=\$B6	LASTJY	=\$B8
MISLN	=\$B9	MSBAND	=\$BA	MISPOF	=\$BB	MISDIR	=\$BC
MIDTIM	=\$BC	DOBAND	=\$BD	DIGBAND	=\$BE	DOPOF	=\$C0
DIGPOF	=\$C1	DODAT	=\$C3	DIGDAT	=\$C4	DIGDIR	=\$C6
DIGSPD	=\$C8	DIGTIM	=\$CA	DIGIQ	=\$CC	MUX	=\$CE
APBAND	=\$D0	APPOF	=\$D4	PWRTIM	=\$D8	RANDOM	=\$D9
MODE	=\$DA	DOINV	=\$DB	PTR	=\$DC	BAND	=\$DD
LODATA	=\$DE	ADAT	=\$E5	HIDATA	=\$E6	APOF	=\$E7
TEMP14	=\$EA	TEMP15	=\$EB	TEMP11	=\$EC	TEMP12	=\$ED
TEMP13	=\$EE	LODATB	=\$EF	TEMP1	=\$EF	TEMP2	=\$F0
TEMP3	=\$F1	TEMP4	=\$F2	PD100K	=\$F2	TEMP5	=\$F3
TEMP6	=\$F4	PD10K	=\$F4	TEMP7	=\$F5	BDAT	=\$F6
TEMP8	=\$F6	PD1K	=\$F6	HIDATB	=\$F7	TEMP9	=\$F7
BPOF	=\$F8	TEMP10	=\$F8	PD100	=\$F8	PD10	=\$FA
PD1	=\$FC	JOYDAT	=\$0280	IQADIR	=\$0281	SWITCH	=\$0282
IOBDIR	=\$0283	TIMER	=\$0284	TIME64	=\$0296	BOTVI	=\$202E
BVISW	=\$3007	INITSW	=\$300E	TOP2	=\$3012	OK2	=\$301F
TWODIG	=\$302B	UPPTR	=\$3036	NDIG	=\$3038	LSTLFT	=\$3052
ANIM9	=\$3054	NORK	=\$3068	ORK	=\$306B	SETRAM	=\$307C
ISA	=\$3086	NORMAP	=\$30C1	APRAM	=\$30C5	APR50	=\$30F1
DIG12	=\$3109	DIG13	=\$3112	DIG15	=\$3115	DIG17	=\$3122
DIG18	=\$3127	AFLFRM	=\$312A	AFLFR5	=\$312F	DIG33	=\$3144
DIG40	=\$3153	DIG45	=\$3162	DIG50	=\$3171	DIG60	=\$317D
DIG99	=\$3189	COMPET	=\$318C	COMP1	=\$3191	COMP15	=\$319A
COMP2	=\$31A2	CPETE	=\$31AF	COMP3	=\$31B2	CPETE2	=\$31B7
TURNON	=\$31C0	FIRST	=\$31CD	PTRBIT	=\$31DE	PTRDON	=\$31E7
TURN5	=\$3203	TRYON	=\$321E	TRY1	=\$3223	TRY9	=\$3236
AFIMG	=\$323C	MRDOIMG	=\$3248	MDPTL	=\$3248	MDPTR	=\$324A
DIGIMG	=\$324C	LETIMG	=\$3252	TITLE	=\$325C	TOPEND	=\$325C
GAMSPD	=\$327B	TEST2	=\$327F	ORKSCR	=\$329D	TITLE0	=\$32A0
IMG5	=\$32E6	TITLE1	=\$32BF	TITL11	=\$32C8	TITL12	=\$32CE
IMG6	=\$32E1	TITLE2	=\$32EA	TITLE3	=\$32F3	TITLE9	=\$33C3
HOLDUP	=\$3310	HOLD7	=\$3329	HOLD9	=\$3340	NJTSSEL	=\$3353
HOLD10	=\$335B	DO1	=\$3378	WAIT5	=\$3383	ORCHARD	=\$

CHER3	=\$3885	? CHER4	=\$3882	? CHER5	=\$388F	? CHER6	=\$386C
DATA1	=\$3890	DIGITS	=\$3890	ZFPC	=\$3890	DATA2	=\$3897
TWO	=\$38A0	THREE	=\$38A8	FOUR	=\$38B0		=\$38B8
SIX	=\$38C0	SEVEN	=\$38C8	EIGHT	=\$38D0	NINE	=\$38D8
BLANK	=\$38E0	SCORTB	=\$38E8	SBIMG	=\$3900	CHERRY	=\$3900
MRDOLL	=\$3922	NULLB	=\$3934	MRDORL	=\$3944	MRIDORR	=\$3946
MRDOLR	=\$3988	WORDS	=\$39AA	COLECO	=\$39AA	PRESNT	=\$39B0
MRDOT1	=\$39B6	MRDOTB	=\$39B7	NULLTB	=\$39BD	GAMETB	=\$39C3
OVERTB	=\$39C9	LETTBL	=\$39CF	REVTBL	=\$39D5	SPRITS	=\$39DB
SPR6	=\$39E7	IMG1	=\$3A00	? APPLE0	=\$3A00	APPLE1	=\$3A00
APPLE2	=\$3A0E	APPLE3	=\$3A1C	APPLE4	=\$3A2A	APPLE5	=\$3A38
APEND	=\$3A3A	DIGLR	=\$3A4F	DIGLL	=\$3A70	DUGLL	=\$3A92
DUGLR	=\$3AB4	NULL1	=\$3AE4	? IMG2	=\$3B00	DUGRR	=\$3B00
DUGRL	=\$3B20	LETRE	=\$3B49	LETRX	=\$3B6A	LETRT	=\$3B8B
LETRR	=\$3BAC	LETRA	=\$3BCD	DATA2	=\$3C00	? LETTRS	=\$3C00
LM	=\$3C00	LR	=\$3C08	REVR	=\$3C10	SMLR	=\$3C18
LD	=\$3C20	LOH	=\$3C28	LE	=\$3C30	REVE	=\$3C38
LX	=\$3C40	REVX	=\$3C48	LT	=\$3C50	REVT	=\$3C58
LA	=\$3C60	REVA	=\$3C68	LC	=\$3C70	LL	=\$3C78
LO	=\$3C80	LPR	=\$3C88	LE2	=\$3C90	LSE	=\$3C98
LN	=\$3CA0	LTS	=\$3CA8	LS	=\$3CB0	NULL	=\$3CB8
LG	=\$3CC2	LV	=\$3CCE	POS	=\$3CD3	POS10	=\$3CE2
LETPOS	=\$3CEC	PAINT	=\$3CF4	DLAY15	=\$3D19	ASYM	=\$3D25
? NPOSA2	=\$3D50	? NPOSB2	=\$3D60	ASYMB	=\$3D6C	? NPOSA1	=\$3D79
? POSB1	=\$3D8F	LATB1	=\$3D98	ASYMA	=\$3DA2	? POSA1	=\$3DC7
LATCH1	=\$3DD6	? NPOSB	=\$3DDF	ASYMAB	=\$3DF4	POSA	=\$3E01
LAT	=\$3E0F	? FOSB	=\$3E1A	LATB	=\$3E27	ASYMV	=\$3E32
YCHRY	=\$3E58	NCHRY	=\$3E5E	SDAT1	=\$3E65	MTEST	=\$3E79
NOMIS	=\$3E87	? SDAT2	=\$3E8A	MIS1	=\$3EA2	MIS2	=\$3EAD
CYCL41	=\$3EB4	? ASYMD	=\$3EBD	NUBAND	=\$3EEB	FIN	=\$3EFC
POSI	=\$3F3E	INV2	=\$3F63	INV3	=\$3F65	PAL4	=\$3F6F
? INVENT	=\$3F74	DOLOOP	=\$3F76	INVTBL	=\$3F8F	SCORE	=\$3F96
SCORE1	=\$3F8A	SC4	=\$3FC2	END	=\$3FFE		